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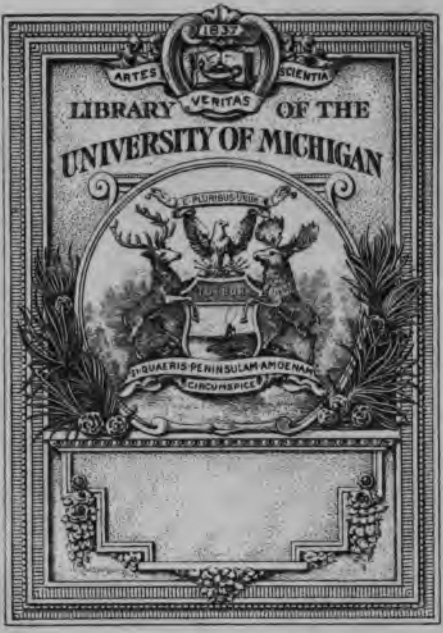

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1831.	WILLIAM LAWRENCE.
1833.	JOHN ELLIOTSON, M.D.
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1837.	RICHARD BRIGHT, M.D.
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FELLOWS
OF THE
ROYAL
MEDICAL AND CHIRURGICAL SOCIETY
OF LONDON.

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AUGUST 1844.

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ELECTED
1841 *JAMES ABERCROMBIE, M.D., *Cape of Good Hope.*
1842 William Acton, Esq., *Surgeon to the Islington Dispensary; 46, Queen Anne-street, Cavendish-square.*
1818 Walter Adam, M.D., *Physician to the Royal Public Dispensary, Edinburgh.*
1818 Thomas Addison, M.D., *Physician to Guy's Hospital;* 24, *New-street, Spring-gardens.*
1814 Joseph Ager, M.D., *Great Portland-street.*
1819 *James Ainge, Esq., *Fareham, Hants.*
1837 *Ralph Fawsett Ainsworth, M.D., 104, *King-street, Manchester.*
1819 George F. Albert, Esq.
1839 Rutherford Alcock, Esq., K.C.T., K.T.S.
1826 James Alderson, M.D., F.R.S., *Physician to the General Infirmary, Hull.*

ELECTED	
1843	C. J. B. Aldis, M.D., *Physician to the London and Surrey Dispensaries, and Lecturer on Medicine to the Aldersgate and Charlotte-street Schools of Medicine; Old Burlington-street.*
1813	Henry Alexander, Esq., *Surgeon-Oculist in Ordinary to the Queen, and Surgeon to the Royal Infirmary for Diseases of the Eye; 6, Cork-street.*
1826	M. Allen, M.D., *Leopard's Lodge, Loughton, Essex.*
1836	Henry Ancell, Esq., *Surgeon to the Western General Dispensary; 3, Norfolk-crescent, Oxford-square.*
1817	Alexander Anderson, Esq.
1816	John Goldwyer Andrews, Esq., *Surgeon to the London Hospital; 4, St. Helen's-place.*
1820	Thomas F. Andrews, M.D., *Norfolk, Virginia.*
1813	William Ankers, Esq., *Knutsford.*
1816	William Annandale, Esq., 3, *Great Queen-street, Westminster.*
1819	Professor Antommarchi, *Florence.*
1818	William Withering Arnold, M.D., *Physician to the Infirmary and Lunatic Asylum, Leicester.*
1825	Thomas Graham Arnold, M.D., *Stamford.*
1819	James M. Arnott, Esq., F.R.S., *Surgeon to the Middlesex Hospital; New Burlington-street.*
1828	Neil Arnott, M.D., F.R.S., *Physician Extraordinary to the Queen; Bedford-square.*
1817	John Ashburner, M.D., M.R.I.A., *Physician-Accoucheur to the Queen Charlotte's Lying-in Hospital, and Physician-Accoucheur to the Middlesex Hospital; Wimpole-street.*
1822	Samuel Ashwell, M.D., *Obstetric Physician and Lecturer to Guy's Hospital; 16, Grafton-street.*
1841	John Avery, Esq., *Surgeon to the Charing Cross Hospital; 17, Saville-row.*
1825	Benjamin G. Babington, M.D., F.R.S., *Physician to Guy's Hospital, and Physician to the Deaf and Dumb Institution; 31, George-street, Hanover-square.*
1819	John Carr Badeley, M.D., *Chelmsford.*
1820	*John H. Badley, Esq., *Dudley.*
1838	Francis Badgley, M.D., *Montreal, Upper Canada.*
1840	William Bainbridge, Esq., *Upper Tooting.*

ELECTED	
1836	Andrew Wood Baird, M.D., *Ipswich.*
1816	*William Baker, M.D., *Physician to the Derbyshire General Infirmary; Derby.*
1839	T. Graham Balfour, M.D., *Grenadier Guards, Army and Navy Club, St. James's-square.*
1837	William Baly, M.D., *Physician to the General Penitentiary, Millbank, and Lecturer on Forensic Medicine at St. Bartholomew's Hospital;* 28, *Spring-gardens.*
1833	Alfred Barker, M.D., *Physician to St. Thomas's Hospital;* 15, *Grafton-street, Bond-street.*
1843	Thomas Herbert Barker, Esq., *formerly House Surgeon to University College Hospital; Priory-terrace, Bedford.*
1843	Christopher Hewetson Barnes, Esq., *late Surgeon Hon. East India Company's Service; Belle-Vue House, Notting-hill.*
1815	*John Baron, M.D., *Cheltenham.*
1840	Benjamin Barrow, Esq., *Liverpool.*
1822	James Bartlet, M.D., *Physician to His Royal Highness the Duke of Cambridge;* 10, *Bentinck-street.*
1844	William R. Basham, M.D., *Physician to the Westminster Hospital; Chester-street, Grosvenor-place.*
1836	William Beaumont, Esq., *Toronto, Upper Canada.*
1841	George Beaman, Esq., 32, *King-street, Covent-garden.*
1840	Charles Beevor, Esq., *Surgeon to the St. Marylebone Dispensary;* 49, *Berners-street.*
1824	*Benjamin Bell, Esq., *Edinburgh.*
1818	*Joseph Bell, Esq., *Surgeon to the Royal Infirmary; Edinburgh.*
1819	Thomas Bell, Esq., F.R.S., L.S. and G.S., *Lecturer on Diseases of the Teeth, at Guy's Hospital;* 17, *New Broad-street.*
1820	Stephen Bertin, Esq., *Paris.*
1818	John Jeremiah Bigsby, M.D., *Newark, Nottinghamshire.*
1815	Archibald Billing, M.D., F.R.S., F.G.S., *Senior Physician to the London Hospital;* 6, *Grosvenor-gate, Park-lane.*
1827	William Birch, Esq., *Barton, Lichfield.*
1835	James Bird, Esq., 16, *Orchard-street, Portman-square.*
1843	John Birkett, Esq., *Demonstrator of Anatomy at Guy's Hospital;* 2, *Broad-street-buildings.*

ELECTED

1812 Adam Black, M.D.; 34, *Albemarle-street.*

1843 Patrick Black, M.D., *Assistant Physician to St. Bartholomew's Hospital; Bedford-square.*

1844 Thomas Blackall, M.D., *Physician to the Pimlico Dispensary; Queen-street, May-fair.*

1839 Richard Blagden, Esq., *Albemarle-street.*

1814 Thomas Blair, M.D.

1841 James Blake, Esq., 27, *Conduit-street.*

1840 Peyton Blakiston, M.D., F.R.S., *Birmingham.*

1811 *Henry C. Boisragon, M.D., *Cheltenham.*

1823 Louis Henry Bojanus, M.D., *Wilna.*

1816 Hugh Bone, M.D., *Inspector-General of Hospitals.*

1810 John Booth, M.D., *Physician to the General Hospital at Birmingham.*

1841 William Bowman, Esq., F.R.S., *Assistant Surgeon to King's College Hospital;* 14, *Golden-square.*

1806 John Bostock, M.D., F.R.S., 22, *Upper Bedford-place.*

1844 Robert Brandon, Esq., *George-street, Portman-square.*

1818 Gilbert Breschet, M.D., *Surgeon to the Hôtel Dieu, Paris.*

1814 Richard Bright, M.D., F.R.S., *Physician Extraordinary to the Queen, and Consulting Physician to Guy's Hospital; Saville-row.*

1813 Sir Benjamin C. Brodie, Bart., V.P.R.S., *Serjeant-Surgeon to the Queen, Surgeon in Ordinary to His Royal Highness Prince Albert; Saville-row.*

1844 Charles Brooke, Esq., *Keppel-street, Russell-square.*

1828 Benjamin Brookes, Esq., *Surgeon to the British Lying-in Hospital, Brownlow-street;* 37, *Bedford-street, Covent-garden.*

1842 Charles Blakely Brown, M.D., *Physician-Accoucheur to the St. George's and St. James's Dispensary;* 3, *John-street, Berkeley-square.*

1818 *Samuel Barwick Bruce, Esq., *Surgeon to the Forces; Ripon.*

M. Pierre Brulatour, *Surgeon to the Hospital; Bordeaux.*

1823 B. Bartlet Buchanan, M.D.

1843 J. Charles Bucknill, Esq., M.B., *Westbourne-place, Pimlico.*

1839 George Budd, M.D., F.R.S., *Professor of Medicine in King's College, London; Physician to King's College Hospital;* 20, *Dover-street, Piccadilly.*

ELECTED	
1839	Thos. Henry Burgess, M.D, 29, *Margaret-street, Cavendish-square.*
1844	A. J. Burmester, Esq., 7, *Stanhope-street, Gloucester-gate, Regent's Park.*
1833	George Burrows, M.D., *Physician to, and Lecturer on Medicine at, St. Bartholomew's Hospital;* 45, *Queen Anne-street.*
1820	Samuel Burrows, Esq.
1835	Henry Burton, M.D., *Physician to St. Thomas's Hospital;* 41, *Jermyn-street.*
1837	George Busk, Esq., *Hospital-ship Dreadnought; Greenwich.*
1818	John Butter, M.D., F.R.S., F.L.S., *Physician to the Plymouth Eye Infirmary; Plymouth.*
1832	*William Campbell, M.D., *Physician to the New Town Dispensary, and Lecturer on Midwifery; Edinburgh.*
1838	*Alexander Campbell, M.D., *Bombay.*
1842	Henry Cantis, Esq., 8, *Maddox-street, Hanover-square.*
1839	Robert Carswell, M.D., *Physician to their Majesties the King and Queen of the Belgians; Brussels.*
1825	Harry Carter, M.D., *Physician to the Kent and Canterbury Hospital; Canterbury.*
1818	Richard Cartwright, Esq., 34, *Bloomsbury-square.*
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1837	Henry T. Chapman, Esq., *Ampthill, Bedfordshire.*
1838	George Chaplin Child, M.D., *Physician to the Westminster General Dispensary;* 27, *Mortimer-street.*
1842	W. D. Chowne, M.D., *Physician to the Charing Cross Hospital; Princes-street, Cavendish-square.*
1827	Sir James Clark, Bart., M.D., F.R.S., *Physician to the Queen, Physician in Ordinary to His Royal Highness Prince Albert, and Consulting Physician to their Majesties the King and Queen of the Belgians; Brook-street.*

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1839	F. Le Gros Clark, Esq., *Assistant Surgeon and Lecturer on Descriptive and Surgical Anatomy at St. Thomas's Hospital;* 30, *Finsbury-square.*
1835	James Clayton, Esq., 3, *Percy-street, Bedford-square.*
1842	Oscar M. P. Clayton, Esq., 3, *Percy-street, Bedford-square.*
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1840	*William Robert Cooke, Esq., *Northampton.*
1840	Bransby Blake Cooper, Esq., F.R.S., *Surgeon to Guy's Hospital; New-street, Spring-gardens.*
1819	George Cooper, Esq., *Brentford.*
1820	Benjamin Cooper, Esq., *Stamford.*
1843	William W. Cooper, Esq., *Senior Surgeon to the North London Ophthalmic Institution and to the Honourable Artillery Company;* 2, *Tenterden-street, Hanover-square.*
1841	George Lewis Cooper, Esq., *Surgeon to the Bloombury Dispensary;* 35, *Keppel-street, Russell-square.*
1841	Holmes Coote, Esq., *Surgeon to the North London Ophthalmic Institution;* 24, *Argyle-street.*
1835	George F. Copeland, Esq., *Cheltenham.*
1812	Thomas Copeland, Esq., F.R.S., 17, *Cavendish-square.*
1822	James Copland, M.D., F.R.S., *Consulting Physician to Queen Charlotte's Lying-in Hospital;* 5, *Old Burlington-street.*
1839	*Charles C. Corsellis, M.D., *Resident Physician to the Lunatic Asylum, Wakefield.*
1814	*William Cother, Esq., *Surgeon to the Infirmary, Gloucester.*
1828	William Coulson, Esq., *Surgeon to the Magdalen Hospital, Consulting Surgeon to the City Lying-in Hospital; Frederick's-place, Old Jewry.*
1836	*William Travers Cox, M.D., *Physician to the Salisbury General Infirmary.*
1817	Sir Philip Crampton, Bart., F.R.S., *Surgeon-General to the Forces in Ireland; Dublin.*

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1814 Stewart Crawford, M.D., *Bath.*

1841 M. A. N. Crawford, M.D., *Physician to the Middlesex Hospital;* 62, *Upper Berkeley-street, Portman-square.*

1822 Sir Alexander Crichton, M.D., F.R.S., and F.L.S., *Physician in Ordinary to their Imperial Majesties the Emperor and Dowager Empress of all the Russias.*

1837 J. F. Crookes, Esq., *Surgeon to the Farringdon Dispensary;* 5, *Suffolk-place ,Pall Mall East.*

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1837 Thomas B. Curling, Esq., *Lecturer on Surgery, and Assistant Surgeon to the London Hospital;* 37, *New Broad-street.*

1836 George Cursham, M.D., SECRETARY, *Physician to the Asylum for Female Orphans;* 5, *Saville-row.*

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1836 *James S. Daniel, Esq., *Ramsgate.*

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1818 *Sir Francis Sacheverel Darwin, Knt., M.D., *Sydnope, near Matlock, Derbyshire.*

1842 Bury Irwin Dasent, Esq., 11, *Pall Mall.*

1818 Henry Davies, M.D., *Physician to the British Lying-in Hospital, Brownlow-street; Saville-row.*

1817 Thomas Davis, Esq., *Hampstead.*

1820 Thomas Davis, Esq., *Brook-street, Hanover-square.*

1818 James Dawson, Esq., *Liverpool.*

1841 Campbell De Morgan, Esq., *Assistant Surgeon to the Middlesex Hospital;* 17, *Manchester-street.*

1816 *Sir David James Hamilton Dickson, M.D., F.R.S. Ed., and F.L.S., *Physician to the Fleet, and to the Royal Naval Hospital, Plymouth.*

ELECTED

1839 James Dixon, Esq., *Assistant Surgeon to the Royal London Ophthalmic Hospital, and Demonstrator of Anatomy at St. Thomas's Hospital;* 37, *Broad-street-buildings.*

1844 Robert Dickson, M.D., *Lecturer on Botany at St. George's Hospital; Curzon-street, May-fair.*

1826 John Sommers Down, M.D., *Southampton.*

1839 Henry Pye Lewis Drew, Esq., *Torrington-square.*

1843 Thomas Jones Drury, M.D., *Physician to the Salop Infirmary; Shrewsbury.*

1833 William Dunbar, M.D., *Bombay.*

1833 Robert Dunn, Esq., *Norfolk-street, Strand.*

1843 C. M. Durrant, M.D., *Physician to the East Suffolk and Ipswich Hospital; Ipswich.*

1839 Henry S. Dyer, M.D., 3, *Cambridge-terrace, Regent's-park.*

1836 J. W. Earle, Esq., *Cheltenham.*

1824 George Edwards, Esq.

1823 C. C. Egerton, Esq., *India.*

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1838 Thomas Elliotson, M.D., *Physician to the Surrey Dispensary; Clapham.*

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1842 John E. Erichsen, Esq., *Lecturer on General Anatomy and Physiology at the Westminster Hospital*; 48, *Welbeck-street, Cavendish-square.*

1815 G. F. D. Evans, M.D., 21, *Hill-street, Berkeley-square.*

1836 George F. Evans, M.B., *Physician to the Birmingham Hospital.*

1841 Sir James Eyre, M.D., 11, *Brook-street, Grosvenor-square.*

1841 Alexander Farquhar, Esq., A.M.

1844 Arthur Farre, M.D., F.R.S., *Professor of Midwifery in King's College, London*; *Curzon-street, May-fair.*

1831 Robert Ferguson, M.D., *Physician-Accoucheur to the Queen, Physician to the Westminster Lying-in Hospital; Queen-street, May-fair.*

1814 William Fergusson, M.D., *Inspector of Hospitals; Windsor.*

1841 William Fergusson, Esq., *Professor of Surgery in King's College, London; and Surgeon to King's College Hospital;* 8, *Dover-street, Piccadilly.*

ELECTED

1841 William Finch, M.D., F.L.S., *Laverstock-hall, Salisbury.*

1836 John W. Fisher Esq., *Surgeon-in-chief to the Metropolitan Police Force;* 21, *Argyle-street.*

1839 G. Lionel Fitzmaurice, Esq., *Manchester-street.*

1840 Valentine Flood, M.D., *Ehrenberg-terrace, Mornington-road, Regent's-park.*

1842 Thomas Bell Elcock Fletcher, M.D., *Physician to the General Dispensary, Birmingham.*

1841 John Forbes, M.D., F.R.S., *Physician to Her Majesty's Household; Old Burlington-street.*

1817 *Robert T. Forster, Esq., *Southwell.*

1820 Thomas Forster, M.D., *Hartfield-lodge, East Grinsted.*

1816 John W. Francis, M.D., *Professor of Materia Medica in the University of New York.*

1841 J. Ch. August. Franz, M.D., *Royal German Spa, Brighton.*

1843 Patrick Fraser, M.D., *Guilford-street, Russell-square.*

1836 John G. French, Esq., *Surgeon to St. James's Infirmary;* 41, *Great Marlborough-street.*

1815 *George Frederick Furnival, Esq., *Egham.*

1819 John Samuel Gaskoin, Esq., 32, *Clarges-street.*

1819 Henry Gaulter, Esq.

1821 *Richard Francis George, Esq., *Surgeon to the Bath Hospital.*

1841 J. D. George, Esq., 32, *Old Burlington-street.*

1812 George Goldie, M.D., *York.*

1837 Richard H. Goolden, M.D., *Physician to the Hospital-ship Dreadnought, Assistant Physician to St. Thomas's Hospital; John-street, Adelphi.*

1816 Theodore Gordon, M.D., VICE-PRESIDENT, *Physician Extraordinary to His Royal Highness Prince Albert; Deputy Inspector-general of Hospitals; Norfolk-crescent, Oxford-square.*

1818 James Alexander Gordon, M.D., F.R.S., *Physician to the London Hospital; Lower Grosvenor-street.*

1825 Robert Graham, M.D., F.R.S. ED., *Professor of Botany in the University of Edinburgh.*

1827 R. D. Grainger, Esq., VICE-PRESIDENT, *Lecturer on Anatomy; Anerley, Norwood.*

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1844	John Grantham, Esq., *Crayford, Kent.*
1816	Joseph H. Green, Esq., F.R.S., *Surgeon to St. Thomas's Hospital; Hadley, Middlesex.*
1841	George Gregory, M.D., *Physician to the Small-Pox Hospital;* 31, *Weymouth-street.*
1843	Robert Greenhalgh, Esq., *Upper Charlotte-street, Fitzroy-square.*
1835	William Griffith, Esq., *Surgeon to the Royal Maternity Charity, and Lecturer on Midwifery at the Westminster Hospital; Lower Belgrave-street, Belgrave-square.*
1814	John Grove, M.D., *Salisbury.*
1837	James Manby Gully, M.D., *Holyrood-house, Great Malvern.*
1819	John Gunning, Esq., *Inspector of Hospitals, Paris.*
1841	Charles W. G. Guthrie, Esq.
1827	Marshall Hall, M.D., F.R.S., Vice-President; *Manchester-square.*
1842	*George Hall, M.D., 14, *Old Steine, Brighton.*
1819	Thomas Hammerton, Esq., 111, *Piccadilly.*
1838	Henry Hancock, Esq., *Surgeon to the Charing Cross Hospital; Harley-street.*
1836	J. F. Harding, Esq., *Spencer-street, Northampton-square.*
1843	Thomas Sunderland Harrison, M.D., F.L.S., *Senior Physician to the Farringdon Dispensary, Snow-hill;* 5, *Little Argyle-street, and Garston Lodge, Somersetshire.*
1841	William Harvey, Esq., *Surgeon to the Freemasons' Female Charity;* 43, *Great Queen-street, Lincoln's-inn-fields.*
1816	*John Haviland, M.D., *Regius Professor of Physic in the University of Cambridge; Physician to Addenbrooke's Hospital.*
1825	Francis Bisset Hawkins, M.D., F.R.S.
1828	Cæsar H. Hawkins, Esq., Treasurer, *Surgeon to St. George's Hospital, and Lecturer on Surgery;* 26, *Lower Grosvenor-street.*
1838	Charles Hawkins, Esq., 2, *Court-yard, Albany.*
1820	Thomas Emerson Headlam, M.D., *Newcastle-upon-Tyne.*

ELECTED	
1829	T. Heberden, M.D., 11, *Upper Brook-street.*
1844	John Hennen, M.D., 24, *Upper Southwick-street, Hyde-park.*
1821	Vincent Herberski, M.D., *Professor of Medicine in the University of Wilna.*
1843	Prescott Gardiner Hewett, Esq., *Curator of St. George's Hospital Museum ;* 4, *Vigo-street, Burlington-gardens.*
1841	*Nathaniel Highmore, Esq., *Consulting Surgeon to the Weymouth and Dorsetshire Eye Infirmary ; Sherborne.*
1814	*William Hill, Esq., *Wootton-under-Edge.*
1842	William Augustus Hillman, Esq., *Argyll-street.*
1841	John Hilton, Esq., F.R.S., *St. Thomas's-street, Borough.*
1842	Edward O. Hocken, M.D., 13, *Bloomsbury-square.*
1840	Thomas Hodgkin, M.D., 9, *Brook-street.*
1813	Joseph Hodgson, Esq., F.R.S., *Surgeon to the General Hospital, and to the Eye Infirmary, Birmingham.*
1835	T. H. Holberton, Esq., *Surgeon Extraordinary to the Queen Dowager ; Hampton.*
1843	Luther Holden, Esq., *Old Jewry.*
1814	Henry Holland, M.D., F.R.S., *Physician Extraordinary to the Queen, and Physician in Ordinary to His Royal Highness Prince Albert ;* 25, *Brook-street.*
1815	James Home, M.D., *Professor of the Practice of Physic in the University of Edinburgh.*
1819	*John Howell, M.D., F.R.S. Ed., *Clifton.*
1828	*Edward Howell, M.D., *Swansea.*
1844	Edwin Humby, Esq., 9, *Warwick Villas, Paddington.*
1822	Robert Hume, M.D., *Inspector of Hospitals;* 9, *Curzon-street.*
1840	Henry Hunt, M.D., *Brook-street, Hanover-square.*
1842	Christopher Hunter, Esq., *Downham, Norfolk.*
1821	William Hunter, M.D., *Surgeon-Major to the Coldstream Regiment of Guards.*
1820	William Hutchinson, M.D.
1840	Charles Hutton Esq., 6, *Union-street, May-fair.*
1838	William Ifil, M.D.
1826	William Ingram, Esq., *Midhurst.*
1839	A. R. Jackson, M.D., *East India Company's Depôt, Warley Barracks, Essex.*

ELECTED	
1841	Paul Jackson, Esq., *Thayer-street, Manchester-square.*
1841	Maximilian M. Jacobovicz, M.D., *Pesth.*
1825	John B. James, M.D.
	Samuel John Jeaffreson, M.D., *Physician to the Chelsea, Belgrave and Brompton Dispensary;* 22, *Half-moon-street.*
1839	Julius Jeffreys, Esq., F.R.S., 3, *Ladbroke Villas, Notting-hill.*
1840	*G. Samuel Jenks, M.D., *Brighton.*
1821	Edward Johnson, M.D., *Weymouth.*
1820	James Johnson, M.D., 8, *Suffolk-place, Pall-mall.*
1837	H. C. Johnson, Esq., *Assistant Surgeon to St. George's Hospital;* 6, *Saville-row.*
1844	John Johnston, Esq., 2, *Stafford-street, Bond-street.*
1835	H. D. Jones, Esq., 20, *Soho-square.*
1844	Henry Bence Jones, M.D., *Grosvenor-street.*
1837	T. W. Jones, M.D., 19, *Finsbury-pavement, Finsbury-square.*
1829	*G. Julius, Esq., *Richmond.*
1816	*George Hermann Kauffmann, M.D., *Hanover.*
1815	Robert Keate, Esq., Vice-President, *Serjeant-Surgeon to the Queen; Surgeon to Her Royal Highness the Duchess of Gloucester; and Surgeon to St. George's Hospital;* 15, *Albemarle-street.*
1822	Robert Masters Kerrison, M.D., F.R.S., 12, *New Burlington-street.*
1838	L. P. Kell, M.D., *Bridge-street, Westminster.*
1839	*David King, M.D., *Eltham.*
1836	P. N. Kingston, M.D., *Physician to the Westminster Hospital; Curzon-street, May-fair.*
1806	James Laird, M.D., *Consulting Physician to the Public Dispensary.*
1805	William Lambe, M.D., 51, *Gloucester-street, Queen-square.*
1823	Edmund Lambert, M.D., *Salisbury.*
1840	John Wallis Lambert, Esq., 57, *Berners-street.*
1840	Samuel Lane, Esq., *Assistant Surgeon to the Lock Hospital Grosvenor-place.*
1841	*Charles Lashmar, M.D., *Croyd*
1816	G. E. Lawren

ELECTED	
1809	William Lawrence, Esq., F.R.S., *Surgeon Extraordinary to the Queen; Surgeon to St. Bartholomew's Hospital, and to Bridewell and Bethlehem Hospitals; Lecturer on Surgery at St. Bartholomew's Hospital;* 18, *Whitehall-place.*
1840	Thomas Laycock, M.D., *York.*
	*Jesse Leach, Esq., *Heywood, near Bury, Lancashire.*
1823	John G. Leath, M.D.
1822	John Joseph Ledsam, Esq., *Surgeon to the Birmingham Eye Infirmary.*
1822	Robert Lee, M.D., F.R.S., *Physician to the British Lying-in Hospital, and Physician-Accoucheur to the St. Marylebone Infirmary; Lecturer on Midwifery at St. George's Hospital;* 4, *Saville-row.*
1823	Henry Lee, M.D., 21, *Charlotte-street, Bloomsbury.*
1842	Edwin Lee, Esq., 170, *North-street, Brighton.*
1843	Henry Lee, Esq., 13, *Dover-street, Piccadilly.*
1843	John Leeson, Esq., 4, *Finsbury-square.*
1843	Sir George Lefevre, M.D., *Brook-street, Grosvenor-square.*
1836	Frederick Leighton, M.D.
1806	John Lind, M.D.
1835	Robert Liston, Esq., F.R.S., *Surgeon to University College Hospital;* 5, *Clifford-street, Bond-street.*
1818	Robert Lloyd, M.D.
1824	Eusebius Arthur Lloyd, Esq., *Assistant Surgeon to St. Bartholomew's Hospital, and Surgeon to Christ's Hospital;* 14, *Bedford-row.*
1820	J. G. Locher, M.C.D., *Town Physician of Zurich.*
1824	Charles Locock, M.D., *First Physician-Accoucheur to the Queen; Physician to the Queen Dowager, and to the Westminster Lying-in Hospital; Hanover-square.*
1844	Edward Lonsdale, Esq., *Guilford-street, Russell-square.*
1836	Joseph S. Löwenfeld, M.D., *Berbice.*
1815	*Peter Luard, M.D., *Warwick.*
1814	Sir James Macgrigor, Bart., M.D., F.R.S. L. and Ed., *Director-General of the Medical Department of the Army; Camden-hill, Kensington.*

ELECTED

1823 George Macilwain, Esq., *Consulting Surgeon to the Finsbury Dispensary; Court-yard, Albany.*

1818 W. Mackenzie, Esq., *Surgeon to the Eye Infirmary, Glasgow.*

1822 Richard Macintosh, M.D.

1844 James Sutherland Mackintosh, Esq., *Wilton-place, Knightsbridge.*

1839 William Macintyre, M.D., *Harley-street.*

1844 Daniel Maclachlan, M.D., *Physician to the Royal Hospital, Chelsea.*

1842 John Macnaught, M.D.

1835 D. C. Macreight, M.D., *St. Hillier's, Jersey.*

1837 A. M. M'Whinnie, Esq., *Assistant Teacher of Practical Anatomy at St. Bartholomew's Hospital; Bridge-street, Blackfriars.*

1836 John Malyn, Esq., *Surgeon to the Western Dispensary, and to the Infirmary of St. Margaret and St. John;* 12, *James-street, Buckingham-gate.*

1824 Sir Henry Marsh, Bart., M.D., *Dublin.*

1838 Thomas Parr Marsh, M.D., *Physician to the Salop Infirmary; Shrewsbury.*

1840 John Marston, Esq., 6, *Devonshire-street, Portland-place.*

1841 James Ranald Martin, Esq., 9, *Grosvenor-street.*

1819 *John Masfen, Esq., *Surgeon to the County General Infirmary, and Fever Hospital, Stafford.*

1818 J. P. Maunoir, *Professor of Surgery at Geneva.*

1820 Herbert Mayo, Esq., F.R.S.

1837 Thomas Mayo, M.D., F.R.S., *Physician to the St. Marylebone Infirmary; Wimpole-street.*

1839 R. H. Meade, Esq., *Bradford, Yorkshire.*

1819 *Thomas Medhurst, Esq., *Hurstbourne Tarrant.*

1811 Samuel Merriman, M.D., F.L.S., TREASURER, 34, *Brook-street.*

1837 S. W. J. Merriman, M.D., *Physician to the Westminster General Dispensary; Brook-street.*

1815 Augustus Meyer, M.D., *St. Petersburgh.*

1840 Richard Middlemore, Esq., *Surgeon to the Eye Infirmary, Birmingham.*

ELECTED	
1818	*Patrick Miller, M.D., F.R.S. Ed., *Physician to the Devon and Exeter Hospitals, and to the Lunatic Asylum; Exeter.*
1844	Nathaniel Montefiore, Esq., 4, *Great Stanhope-street, Mayfair.*
1828	Joseph Moore, M.D., *Physician to the Royal Freemasons' Female Charity;* 10, *Saville-row.*
1836	George Moore, Esq., M.D., *Hastings.*
1842	Thomas Morton, Esq., *Assistant Surgeon to University College Hospital, and Surgeon to the Queen's Prison;* 7, *Woburn-place, Russell-square.*
1814	*George Frederick Mühry, M.D., *Hanover.*
1841	Edward William Murphy, M.D., *Professor of Midwifery in University College; Henrietta-street, Cavendish-square.*
1840	Robert Nairne, M.D., *Physician to St. George's Hospital;* 44, *Charles-street, Berkeley-square.*
1831	Alexander Nasmyth, Esq., *Surgeon-Dentist to His Royal Highness Prince Albert;* 13, *George-street, Hanover-square.*
1805	Thomas Nelson, M.D., *Tonbridge Wells.*
1835	Thomas Andrew Nelson, M.D., 41, *George-street, Portman-square.*
1843	Edward Newton, Esq., *Howland-street, Fitzroy-square.*
1816	Thomas Nixon, Esq., *Surgeon-Major to the First Regiment of Foot Guards.*
1819	*George Norman, Esq., *Surgeon to the United Hospital and Puerperal Charity; Bath.*
1829	John North, Esq., *Lecturer on Midwifery at the Middlesex Hospital;* 9, *Gloucester-place.*
1843	William O'Connor, Esq., 69, *George-street, Portman-square.*
1822	James Ady Ogle, M.D., F.R.S., *Clinical and Aldrichian Professor of Medicine, Oxford, and Senior Physician to the Radcliffe Infirmary.*
1844	Edward Lodge Ogle, Esq., 25, *South-street, Grosvenor-square.*
1842	William P. Ormerod, Esq., *Demonstrator of Anatomy at St. Bartholomew's Hospital;* 2, *Ely-place, Holborn.*
1844	Drewry Ottley, Esq., *Hart-street, Bloomsbury-square.*

ELECTED

1840 James Paget, Esq., *Lecturer on General and Morbid Anatomy and Physiology, and Warden of the Collegiate Establishment at St. Bartholomew's Hospital.*

1837 George Pardoe, M.D., *Russell-square.*

1814 John Ranicar Park, M.D.

1836 J. W. Langston Parker, Esq., *Birmingham.*

1843 *Charles Lewis Parker, Esq., A.M., *Surgeon to the Radcliffe Infirmary, Oxford.*

1841 John Parkin, Esq., *Dover-street, Piccadilly.*

1828 Richard Partridge, Esq., F.R.S., *Surgeon to King's College Hospital, and Professor of Anatomy in King's College, London;* 17, *New-street, Spring-gardens.*

1819 Granville Sharp Pattison, Esq., *New-York.*

1830 Charles P. Pelechin, M.D., *St. Petersburgh.*

1830 William Pennington, Esq., 21, *Montague-place, Russell-square.*

1819 John Pryor Peregrine, Esq., 3, *Half-moon-street.*

1839 Thomas Peregrine, Esq., *Half-moon-street.*

1831 Jonathan Pereira, M.D., F.R.S., F.L.S., *Assistant Physician to, and Lecturer on Materia Medica at the London Hospital; Finsbury-square.*

1828 John G. Perry, Esq., *Inspector of Prisons;* 16, *Carlton-house-terrace.*

1844 William V. Pettigrew, Esq., 30, *Chester-street, Grosvenor-place.*

1814 *Edward Phillips, M.D., *Physician to the County Hospital, Winchester.*

1837 Benjamin Phillips, Esq., F.R.S., Librarian, *Surgeon to the St. Marylebone Infirmary, and Assistant Surgeon to the Westminster Hospital;* 17, *Wimpole-street.*

1836 Isaac Pidduck, M.D., 22, *Montague-street, Russell-square.*

1830 Richard Pinckard, M.D., *Physician to the Bloomsbury Dispensary;* 18, *Bloomsbury-square.*

1841 Alfred Pitman, M.D., *Montague-place, Russell-square.*

1843 Charles Pope, M.D., M.A., F.L.S., *Temple Cloud, near Bristol.*

1844 John Philips Potter, Esq., *Demonstrator of Anatomy at University College Hospital;* 308, *Regent-street, Langham-place.*

1840 Lewis Powell, Esq., *John-street, Berkeley-square.*

ELECTED

1842 James Powell, M.B., *Great Coram-street, Brunswick-square.*

1843 *Morris Pritchett, M.D., *H.M.S. Spiteful, Devonport.*

1839 John Propert, Esq., *New Cavendish-street.*

1814 William Prout, M.D., F.R.S., 40, *Sackville-street.*

1816 Sir William Pym, M.D., *Inspector of Hospitals.*

1830 Jones Quain, M.D., *Paris.*

1835 Richard Quain, Esq., F.R.S., *Surgeon to University College Hospital, and Professor of Anatomy in the same College; Keppel-street.*

1807 John Ramsey, M.D., *Physician to the Infirmary at Newcastle.*

1821 Henry Reeder, M.D., *Ridge House, Chipping, Sudbury.*

1835 G. Regnoli, *Professor of Surgery in the University of Pisa.*

1842 David Boswell Reid, M.D., *House of Commons.*

1829 John Richardson, M.D., F.R.S., *Surgeon to the Naval Hospital, Chatham.*

1843 Joseph Ridge, M.D., *Cavendish-square.*

1817 *John Robb, M.D., *Deputy Inspector of Hospitals.*

1821 Charles Julius Roberts, M.D., *Physician to the Infant Orphan Asylum, and Welsh Charity;* 30, *New-Bridge-street.*

1829 *Archibald Robertson, M.D., F.R.S., L. and Ed., *Physician to the General Infirmary, Northampton.*

1843 George Robinson, Esq., 24, *City-road, Finsbury-square.*

1843 William Roden, Esq., M.A., F.L.S., *Kidderminster, Worcestershire.*

1835 G. H. Roe, M.D., *Physician to the Westminster Hospital;* 6, *Hanover-square.*

1836 Arnold Rogers, Esq., 296, *Regent-street.*

1819 Henry S. Roots, M.D., 2 *Russell-square.*

1829 Sudlow Roots, Esq., *Kingston-on-Thames.*

1836 Richard Roscoe, M.D., 16, *Millman-street, Bedford-row.*

1835 *Caleb B. Rose, Esq., *Swaffham.*

1841 Richard Rowland, M.D., *Physician to the City Dispensary; Queen-square, Bloomsbury.*

1837 J. Forbes Royle, M.D., F.R.S., F.L.S., F.Z.S., *Professor of Materia Medica and Therapeutics in King's College, London;* 4, *Bulstrode-street, Manchester-square.*

1836 James Russell, Esq., *Birmingham.*

ELECTED
1843 James Russell, Esq., *Broad-street, Golden-square.*
1827 *Thomas Salter, Esq., F.L.S., *Poole.*
1844 *Thomas Bell Salter, M.D., F.L.S., *Ryde, Isle of Wight.*
1842 George Sampson, Esq., 12, *Chester-street, Belgrave-square.*
1834 Ludwig V. Sauvan, M.D., *Warsaw.*
1840 Augustin Sayer, M.D., 28, *Upper Seymour-street.*
1821 Page Nichol Scott, Esq., *Norwich.*
1824 Edward J. Seymour, M.D., F.R.S., *Physician to St. George's Hospital; Charles-street, Berkeley-square.*
1840 William Sharp, Esq., F.R.S., F.G.S., F.R.A.S., *late Senior Surgeon to the Bradford Infirmary; Humber Bank House, Hull.*
1837 William Sharpey, M.D., F.R.S., L. and Ed., *Professor of Anatomy and Physiology in University College, London;* 68, *Torrington-square.*
1836 Alexander Shaw, Esq., Secretary, *Surgeon to the Middlesex Hospital; Henrietta-street, Cavendish-square.*
1818 Thomas Short, M.D., *Physician to the Forces; Edinburgh.*
1839 Thos. H. Sylvester, M.D., *High-street, Clapham.*
1842 John Simon, Esq., *Assistant Surgeon to King's College Hospital, and Demonstrator of Anatomy in King's College;* 11, *Wellington-street, Strand.*
1821 Charles Skene, M.D., *Professor of Anatomy and Surgery; Marischal College, Aberdeen.*
1827 George Skene, Esq., *Bedford.*
1812 Joseph Skey, M.D., *Inspector-General of Hospitals.*
1824 Frederick C. Skey, Esq., F.R.S., *Assistant Surgeon to St. Bartholomew's Hospital; Surgeon to the Northern Dispensary; and Lecturer on Anatomy and Surgery at the Aldersgate-street Medical School; Grosvenor-street.*
1810 Noel Thomas Smith, M.D., *Newcastle.*
1822 Southwood Smith, M.D., *Physician to the Fever Hospital, and to the Eastern Dispensary;* 38, *Finsbury-square.*
1835 J. G. Smith, Esq., *late Lecturer on Anatomy and Physiology; Harewood, near Leeds.*
1838 Henry Smith, Esq., *Surgeon to the General Dispensary, Aldersgate-street;* 17, *Henrietta-street, Cavendish-square.*

ELECTED	
1843	Robert William Smith, A.M., M.D., M.R.I.A., *Lecturer on Surgery at the Richmond Hospital School of Medicine; Surgeon to the Talbot General Dispensary and Island Bridge Lunatic Asylum;* 62, *Eccles-street, Dublin.*
1843	John Snow, Esq., *Frith-street, Soho-square.*
1819	*George Snowden, Esq., *Ramsgate.*
1816	*John Smith Soden, Esq., *Surgeon to the United Hospital, to the Eye Infirmary, and to the Penitentiary and Lock Hospital; Bath.*
1830	S. Solly, Esq., F.R.S., *Assistant Surgeon to St. Thomas's Hospital; Surgeon to the General Dispensary, Aldersgate-street;* 1, *St. Helen's-place.*
1844	Frederick R. Spackman, M.B., *Cambridge-place, Cambridge-terrace, Hyde-park.*
1834	James Spark, Esq., *Newcastle.*
1843	Stephen Spranger, Esq., *Swatheling House, Southampton.*
1838	G. J. Squibb, Esq., 6, *Orchard-street.*
1835	Richard A. Stafford, Esq., *Surgeon Extraordinary to His Royal Highness the Duke of Cambridge; Surgeon to the St. Marylebone Infirmary; Old Burlington-street.*
1815	Edward Stanley, F.R.S., PRESIDENT, *Surgeon to St. Bartholomew's Hospital;* 23A, *Brook-street.*
1835	Leonard Stewart, M.D., *Keppel-street.*
1842	Alexander Patrick Stewart, M.D., 130, *Mount-street, Berkeley-square.*
1839	Thomas Stone, M.D., *Spring-gardens.*
1843	Robert Reeve Storks, Esq., *Gower-street, Bedford-square.*
1844	John Soper Streeter, Esq., *Harpur-street, Red Lion-square.*
1827	William Stroud, M.D., 20, *Great Coram-street.*
1810	Alexander Robert Sutherland, M.D., F.R.S., 1, *Parliament-street.*
1839	Alexander John Sutherland, M.D., *Physician to St. Luke's Hospital; Fludyer-street.*
1842	James Syme, Esq., *Professor of Clinical Surgery in the University of Edinburgh; Charlotte-square, Edinburgh.*
1844	R. W. Tamplin Esq., *Great Queen-street, Lincoln's-inn-fields.*

ELECTED

1840 Thomas Tatum, Esq., *Surgeon to St. George's Hospital, and Lecturer on Anatomy;* 3, *George-street, Hanover-square.*

1824 J. C. Taunton, Esq., *Surgeon to the City of London Truss Society, and to the City Dispensary;* 48, *Hatton-garden.*

1817 Frederick Thackeray, M.D., *Physician to Addenbrooke's Hospital, Cambridge.*

1805 Honoratus Leigh Thomas, Esq., F.R.S.

1839 Seth Thompson, M.D., *Assistant Physician to the Middlesex Hospital;* 19, *Brook-street.*

1842 Theophilus Thompson, M.D., *Physician to the Northern Dispensary, and to the Hospital for Consumption and Diseases of the Chest;* 3, *Bedford-square.*

1835 F. Hale Thomson, Esq., *Surgeon to the Westminster Hospital; Berners-street.*

1815 *John Thomson, M.D., F.R.S. Ed., *Surgeon to the Forces; Edinburgh.*

1819 John Thomson, M.D., F.L.S., *Physician to the Finsbury Dispensary*; 80, *Coleman-street.*

1836 John Thurnam, M.D., *The Retreat, York.*

1813 Sir Matthew John Tierney, Bart., F.R.S., 26, *Bruton-street.*

1834 R. B. Todd, M.D., F.R.S., Librarian, *Physician to King's College Hospital, Professor of Physiology and of General and Morbid Anatomy in King's College;* 26, *Parliament-street.*

1828 James Torrie, M.D., *Aberdeen.*

1843 Joseph Toynbee, Esq., F.R.S., *Surgeon to the St. George's and St. James's Dispensary; Argyll-place, Regent-street.*

1808 Benjamin Travers, Esq., F.R.S., *Surgeon Extraordinary to the Queen; Surgeon in Ordinary to His Royal Highness Prince Albert;* 12, *Bruton-street.*

1821 *William Travis, M.D., *Scarborough.*

1841 Matthew Truman, M.D., 44, *Gloucester-place, Kentish-town.*

ELECTED	
1820	*William Tudor, Esq., *Bath.*
1819	Martin Tupper, Esq., F.R.S., 5, *New Burlington-street.*
1835	John Cusson Turner, M.D., *Hanwell-park, Middlesex.*
1843	William Twining, M.D., *Physician to the Public Dispensary and North London Ophthalmic Institution; Bedford-place, Russell-square.*
1819	Barnard Van Oven, Esq., *Consulting Surgeon to the Charity for Delivering Jewish Lying-in Women;* 30, *Gower-street, Bedford-square.*
1806	Bowyer Vaux, Esq., *Surgeon to the General Hospital, Birmingham.*
1839	W. R. Vickers, Esq., 32, *Baker-street.*
1814	John P. Vincent, Esq., *Surgeon to St. Bartholomew's Hospital;* 16, *Lincoln's-inn-fields.*
1810	James Vose, M.D.
1828	Benedetto Vulpes, M.D., *Physician to the Hospital of Aversa, and to the Hospital of Incurables, Naples.*
1841	Robert Wade, Esq., *Surgeon to the Westminster General Dispensary;* 68, *Dean-street.*
1823	William Wagner, M.D., *Berlin.*
1820	Thomas Walker, M.D., *Physician to the Forces, and to the Embassy at St. Petersburgh.*
1817	John Warburton, M.D., F.R.S., *Physician to St. Luke's Hospital;* 23, *Park-crescent, Portland-place.*
1821	Tilleard Ward, Esq.
1814	Martin Ware, Esq., 51, *Russell-square.*
1811	John Ware, Esq.
1816	*Charles Bruce Warner, Esq., *Cirencester.*
1829	E. T. Warry, Esq., *Lyndhurst.*
1819	R. Watts, M.D, *Cranbrook.*
1837	Thomas Watson, M.D., *Henrietta-street, Cavendish-square.*
1818	George Hume Weatherhead, M.D., *Physician to the Royal Free Hospital;* 63, *Guilford-street.*
1818	*Charles Webb, Esq., *Oxford.*
1842	Frederic Weber, M.D., *Physician to the St. George's and St. James's Dispensary; Lower-Grosvenor-street.*
1844	William Wegg, M.D., 5, *Maddox-street, Hanover-square.*

ELECTED

1842 Charles West, M.D., *Physician to the Royal Infirmary for Children, and Physician-Accoucheur to the Finsbury Dispensary; 37, Charter-house-square.*

1841 Thomas West, M.D., F.L.S., *Hertford-street, Coventry.*

1840 William Woodham Webb, Esq., *Gislingham, near Thwaite, Suffolk.*

1821 John Webster, M.D., F.R.S., *Consulting Physician to the St. George's and St. James's Dispensary;* 24, *Brook-street.*

1821 Richard Welbank, Esq., 102, *Chancery-lane.*

1816 Sir Augustus West, *Deputy Inspector of Hospitals to the Portuguese Forces; Lisbon.*

1828 John Whatley, M.D.

1840 Joseph Wickenden, Esq., *Birmingham.*

1824 *William Wickham, Esq., *Surgeon to the Winchester Hospital.*

1811 Arthur Ladbroke Wigan, Esq.

1844 Frederick Wildbore, Esq., *High-street, Shoreditch.*

1837 G. A. F. Wilks, M.D., 19, *Hart-street, Bloomsbury-square.*

1840 C. J. Williams, M.D., F.R.S., *Professor of Medicine in University College, and Physician to University College Hospital; Holles-street.*

1814 Robert Williams, M.D., *Physician to St. Thomas's Hospital;* 39, *Bedford-place.*

1829 Robert Willis, M.D., 25, *Dover-street.*

1831 *W. J. Wilson, Esq., *Surgeon to the Manchester Infirmary.*

1816 *Sir Isaac Wilson, M.D., F.R.S. L. and Ed., *Domestic Physician to the Duchess of Kent; Fareham.*

1839 Erasmus Wilson, Esq., *Lecturer on Anatomy and Physiology in the Middlesex Hospital, and Consulting Surgeon to the St. Pancras Infirmary; Charlotte-street, Fitzroy-square.*

1839 James Arthur Wilson, M.D., *Physician to St. George's Hospital; Dover-street.*

1814 *Charles Wingfield, Esq., *Oxford.*

1825 Thomas A. Wise, Esq., *India.*

1841 George Leighton Wood, Esq., *Surgeon to the Bath Hospital; Queen-square, Bath.*

ELECTED

1843 John Ward Woodfall, M.D., *Physician to the Western Dispensary; Dean's-yard, Westminster.*

1833 Thomas Wormald, Esq., *Assistant Surgeon to St. Bartholomew's Hospital; Bedford-row.*

1842 W. C. Worthington, Esq., *Surgeon to the Infirmary, Lowestoft, Suffolk.*

1835 John Wright, M.D., *Princes-court, Westminster.*

HONORARY FELLOWS.

1841 William Thomas Brande, Esq., F.R.S. L. and Ed., *Professor of Chemistry at the Royal Institution of Great Britain; Royal Mint, Tower-hill.*

Sir David Brewster, K.H., LL.D., F.R.S. L. and Ed., &c., *Cor. Mem. Roy. Institute of France, &c.; Kingussie.*

1841 Robert Brown, D.C.L., F.R.S., *Vice President of the Linnean Society; British Museum.*

Rev. W. Buckland, D.D., F.R.S. &c., *Professor of Mineralogy and Geology; Oxford.*

1835 William Clift, Esq., F.R.S., *Royal College of Surgeons.*

1835 Michael Faraday, D.C.L., F.R.S., *Royal Institution.*

1809 Charles Hatchett, Esq., F.R.S., *Hammersmith.*

1841 Sir John Frederick William Herschel, Bart., D.C.L., F.R.S., *President of the Royal Astronomical Society; Somerset House.*

Sir William J. Hooker, LL.D., F.R.S. L. and Ed., *Royal Botanic Garden, Kew.*

The Rev. A. Sedgwick, A.M., F.R.S., &c., *Woodwardian Lecturer, Cambridge.*

1841 The Rev. William Whewell, B.D., F.R.S., *Master of Trinity College, Cambridge.*

FOREIGN HONORARY FELLOWS.

ELECTED

1841 G. Andral, M.D., *Professor in the Faculty of Medicine; Consulting Physician to the King; Paris.*

1815 Paolo Asalini, M.D., *Professor of Surgery, and Chief Surgeon to the Military Hospital at Milan, &c.*

1813 Jacob Berzelius, M.D., F.R.S., *Professor of Chemistry in the University of Stockholm.*

Carl Johan Eckström, K.P.S. and W., *Physician to the King of Sweden, First Surgeon to the Seraphim Hospital, Stockholm.*

W. J. Edwards, M.D., F.R.S., *Member of the Institute of France; Paris.*

1841 Christian Gottfried Ehrenberg, *Berlin.*

Baron A. de Humboldt, *Member of the Institute of France, &c.; Berlin.*

1841 James Jackson, M.D., *Professor of Medicine in the Haward University, Boston, Massachusetts.*

1843 Justus Liebig, M.D., F.R.S., *Professor of Chemistry in the University of Giessen, &c.*

1841 P. C. A. Louis, M.D., *Principal Clinical Professor of the Faculty of Medicine; Paris.*

1841 F. Magendie, M.D., *Member of the Institute; Physician to the Hospital of the Salpetrière; Paris.*

1841 Johann Müller, M.D., *Professor of Anatomy and Physiology; Director of the Royal Anatomical Museum; Berlin.*

J. C. Oersted, M.D., *Professor of Physics in the University of Copenhagen, &c. &c.*

Professor Orfila, *Dean of Faculty, and Physician to the King of the French, &c. &c; Paris.*

1841 Bartolomeo Panizza, M.D., *Pavia.*

1843 Philibert Joseph Roux, *Member of the French Institute; Surgeon in Chief of the Hôtel Dieu; Professor in the Faculty of Medicine; Paris.*

C. J. Temminck, *Director of the Museum of Natural History of the King of Holland; Amsterdam.*

ELECTED

Friedrich Tiedemann, M.D., *Professor of Anatomy and Physiology; Heidelberg.*

Giacomo Tommasini, M.D., *Parma.*

1841 John Warren, M.D., *Professor of Surgery in the Haward University, Boston, Massachusetts.*

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AN ACCOUNT
OF TWO CASES OF
RUPTURE OF THE URETER,
OR PELVIS OF THE KIDNEY,
FROM EXTERNAL VIOLENCE, FOLLOWED BY LARGE EFFUSION OF URINE INTO THE ABDOMEN.

By EDWARD STANLEY, F.R.S.,
SURGEON TO ST. BARTHOLOMEW'S HOSPITAL,
AND
PRESIDENT OF THE SOCIETY.

READ NOVEMBER 14th, 1843.

A RUPTURE of the urinary bladder by external violence is not of rare occurrence, and in the instances of it which have been recorded, it is shown, that according to the part of the bladder which suffered, the urine was effused either into the cavity of the peritoneum, or into the cellular tissue between the peritoneum and the abdominal parietes. Nearly all the cases of this injury hitherto reported have been fatal, yet in a few of these, where the patients lived several days after its occurrence, on examining the injured parts, processes were observed apparently tending to their recovery; these processes consisted in the confinement of the effused urine within a sac bounded by false membrane, the product of inflammation in the surrounding tissues, and they have been observed not only in cases where the urine had been effused into the cellular tissue on the outside of the peritoneum, but alike in the instances of its effusion into the peritoneal cavity. I am not aware of any record of injuries followed by similar results in the higher parts of the urinary apparatus, as the ureter or pelvis of the kidney, and have, therefore, thought that the narrative of the following cases would be of interest to the Society, especially as in one of them the life of the patient was preserved, it may be presumed, by the treatment which was adopted.

A boy, aged nine years, was brought to St. Bartholomew's Hospital immediately after the occurrence of an injury to the lower part of his body, which, it was stated, had been squeezed between the wheel of a cart and a curb-stone; the immediate consequences were, severe contusion of the soft parts around the pelvis, inability to walk, and great pain in the lower part of the abdomen; he lay helpless, apparently suffering from severe internal injury. Much ecchymosis ensued in the integuments around the pelvis, and extensive suppuration in the subcutaneous cellular tissue, from which several ounces of matter were discharged by puncture near the left sacro-iliac symphysis. By the end of the sixth week, recovery of the injured soft parts around the pelvis had considerably advanced. At this period, my attention was directed to a fulness not before observed on the right side of the abdomen, and on further examination, a circumscribed, oblong swelling was recognized through the abdominal parietes, extending from the base of the chest downwards to within a short distance of Poupart's ligament; anteriorly, it terminated abruptly at the linea alba; posteriorly, it could be traced into the lumbar region, but it here presented no distinct boundary; the liver appeared to be pressed upwards by the swelling, so that the right lung did not extend below the sixth rib, the admission of air into it here ceasing in a defined line. Pressure on the swelling gave no pain, but a deep fluctuation in it could be recognised. The urine passed naturally, as it had done throughout, and that there was no distension of the bladder was ascertained by the introduction of a catheter. I could but suppose the swelling to be an abscess, but there was difficulty in adopting this opinion of it from the absence of pain and constitutional derangement. To discover the nature of the swelling, I made a small puncture in it with a lancet, from which a little clear yellow fluid escaped; this was followed by much pain in the abdomen, which yielded to the application of leeches. By this exploratory proceeding, I learned that the fluid was situated immediately beneath the abdominal muscles, and that it was not pus. Three weeks afterwards, the abdominal swelling having become more tense and pointed, I punctured it with a small trochar midway between the last rib and crista of the ilium, and discharged from the opening fifty-one ounces of a clear yellow fluid. Pain in the abdomen followed this puncture, but it yielded as before to the application of leeches. Eleven days afterwards, the swelling having again enlarged, I discharged from it by puncture fifty-eight ounces of a clear yellow fluid. In sixteen days from this puncture, the swelling having again greatly increased, I removed from it sixty-four ounces of fluid. The swelling returned, and having acquired a certain size, it remained stationary, on which account it was not interfered with for nearly three months, when I again punctured it, and discharged seventy-two ounces of fluid of the same characters as before. Three weeks afterwards, I punctured the swelling the sixth and last time, but discharged only six ounces of fluid, and it appeared to me that a larger quantity was not obtained from the existence of some obstacle to the canula fairly entering the cavity in which the fluid was contained. The other parts of the treatment consisted in the repeated applications of leeches, in the application, on one occasion, of a large blister to the swelling, and in the use for a considerable time of the ointment of iodide of potassium: but, with the exception of the leeches, which relieved the pain in the abdomen recurring more or less after each puncture, it is doubtful whether the other measures were of any service. Throughout, the general health had been good, and all the functions of the body appeared to be perfectly performed. From this period the swelling continued without increase or obvious diminution: it still extended from the linea alba into the right lumbar region, and as any further interference by operation or otherwise, was now considered inexpedient, I discharged the boy from the hospital nine months after the occurrence of the accident. At several subsequent periods I have seen him in good health, with the abdominal swelling still distinct, but, as we have thought, slowly diminishing, and with less evident fluctuation.

Three questions of interest here arise—what was the nature of the fluid so largely accumulated in the abdomen; where was it situated; and, if it was urine, from what part of the urinary apparatus was it derived. First, of the nature of the fluid.—My friend Mr. Edward Ormerod, upon whose accuracy I can rely, has reported to me the following results of his examinations of the fluid—that a portion of it obtained at the second puncture of the swelling was slightly alkaline, highly albuminous, of specific gravity 1008, depositing no precipitate, and destitute of the phosphates and lithic acid in sufficient quantity to be shown by common analysis—that a portion of it obtained at the third puncture was of a clear urine colour, inodorous, highly albuminous, and formed, by the addition of common salt, crystals stellated with arborescent radii, thus affording evidence of the presence of urea—that a portion obtained at the fourth puncture was acid and free from albumen. Mr. Taylor, whose ability in chemical analysis is proved by his recent satisfactory examination of the calculi in the Museum of the Royal College of Surgeons, was so good as to examine some of the fluid obtained at the sixth and last puncture of the swelling, and has favoured me with a report, from which the following is an extract:—"That urea was detected in it in the most unequivocal manner, that it was slightly turbid, yellowish, alkaline, highly albuminous, inodorous, of saline taste, and specific gravity 1008. That with urea, it contained chloride of sodium, alkaline carbonates and sulphates, together with the peculiar extractive matter of urine." Mr. Taylor further observed, "that from the absence of mucus in the fluid, the inference would be that its communication with the urinary apparatus is not free, and is probably high up, as at the commencement of the ureter, certainly not with the bladder."

Thus does the analysis of this fluid seem to justify the conclusion that it was urine. It is true that recent observations have shown urea to exist in other animal fluids besides urine, that especially it has been found in dropsical fluids accompanied by disease of the kidneys. Dr. J. F. Simon quotes a case in which the fluid obtained from the abdomen by tapping, contained a large quantity of urea.* Dr. Corrigan has also recorded an instance in which the fluid obtained from the abdomen by tapping, contained so large a quantity of urea, that Professor Kane, to whom he sent the fluid for analysis, could scarcely believe it was not urine.† Further, Dr. Simon states that some fluid obtained by incisions into the legs of a man suffering from granular disease of the kidneys, was found on examination to contain a considerable quantity of urea, with albumen and chloride of sodium. If however the history of the case now related be considered in connection with the composition of the accumulated fluid, which contained, in addition to a large quantity of urea, the other ordinary ingredients of urine, its nature can scarcely be doubted. If, moreover, healthy urinary salts had been but indistinctly recognised in this fluid, we should still hesitate to conclude it could not be urine, since, in a case to be presently related, it will appear that urine unquestionably derived from the ruptured pelvis of a kidney, and effused into the surrounding cellular tissue, here underwent such modifications in its chemical qualities, that a portion of it which had been removed during life by tapping the abdominal parietes, when submitted to examination by a high authority in animal chemistry, was pronounced not to be urine, as it contained so little of the healthy urinary salts.

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* Medical Chemistry.

† Dublin Journal, vol. 21.

With respect to the source of the effused urine in the case which has been related, in the absence of direct evidence on this point, we may refer to the observation of Mr. Taylor, that from the absence of mucus in it, the probable source was high in the urinary apparatus, as at the commencement of the ureter; and with respect to the situation of the fluid, was it within the peritoneal sac, or had it formed for itself a cavity by detaching the peritoneum from the abdominal and lumbar muscles? That the fluid was not within the peritoneal sac seemed to be indicated by the circumscribed character of the swelling, and especially by its abrupt termination at the linea alba, where its further progress would be impeded by the firm connection of the peritoneum with the abdominal aponeuroses. The circumscribed character of the swelling would not alone determine the situation of the fluid to be on the outside of the peritoneum, for there have been cases recorded, wherein the effusion of urine into the peritoneal sac was followed by an abundant deposit of lymph and formation of false membrane, confining the fluid to a portion of the abdominal cavity by the adhesion of the surrounding peritoneal surfaces. Under these circumstances the effused urine formed a circumscribed swelling, and as such was recognised through the walls of the abdomen.* In this way the case before us cannot be well explained, since there had been no peritoneal inflammation, and the abdominal tumour arose gradually without pain or constitutional derangement.

The next case which I have to relate occurred in St. Bartholomew's Hospital, under the care of Mr. Vincent.

A woman was admitted immediately after having been knocked down, and, as it was stated, pushed some way before the wheel of a cart. The left femur was found to be broken in its centre, and she was besides much hurt, especially in the right hypochondrium, where pressure gave considerable pain. On the following day there was much febrile disorder, accompanied by severe pain and distension of the abdomen. She was bled from the arm, large applications of leeches were made to the abdomen, and calomel with antimony was freely administered. In a few days the general distension and pain of the abdomen had subsided, but there remained a circumscribed and painful swelling in the right hypochondrium, which it was thought must be connected with the liver. This swelling increased, taking the form of an enlarged liver, and after some days, a feeling of deep fluctuation in it was discovered. The swelling then became stationary in respect to size, but the fluid in it advanced nearer to the abdominal parietes; at the same time the patient suffered occasional shiverings, with paroxysms of pain and throbbing in the swelling, which were relieved by opium. From the progress of the symptoms it was supposed that suppuration had taken place, and that the abscess was probably connected with the liver.

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* Archives Générales, Juin 1834. Dublin Journal, vol. 9.

Mr. Vincent accordingly punctured the swelling with a small trochar, when, contrary to expectation, there was discharged through the canula between two and three pints of a straw-coloured urinous smelling fluid. The patient was much relieved by the operation. Slight tenderness over the whole abdomen ensued, but it gradually subsided. The urine had been throughout passed freely, and in full quantity. In about ten days the fluid had again accumulated in the abdomen so largely as to occasion much distress. A trochar was again passed into the swelling, and about six pints of fluid were discharged of the same characters as before. Much relief was thus afforded, but in a few days the uneasiness and swelling returned as the fluid re-accumulated. From this period she gradually sunk, and died in the tenth week from the receipt of the injury. The fluid obtained from the abdomen was found to be albuminous, and to contain a small quantity of urea, but from the indistinct recognition of the healthy urinary salts in it, a high chemical authority pronounced it not to be urine.

Upon examination of the body, a large cyst was found on the right side of the abdomen behind the peritoneum extending upwards to the diaphragm, and downwards to the pelvis. The boundaries of this cyst were formed by lymph and thickened cellular tissue; within it was a large quantity of fluid presenting the characters of a mixture of pus and fœtid urine. A passage was found extending from the upper part of the cyst into the pelvis of the right kidney. The aperture in the pelvis of the kidney was large and irregular; the appearances were such as might be expected to result from laceration of the membranous structure composing it. The liver presented in its anterior border, the marks of a slight laceration of its tissue, which was in progress of healing. The kidneys were slightly granular.

It will I presume scarcely be doubted that the case first related was an instance of lesion of the urinary apparatus, probably a slight laceration of the ureter permitting the escape of urine slowly into the cellular tissue behind the peritoneum. Both cases illustrate the difficulties that may arise in the diagnosis of such injuries. They show moreover that the rupture of the ureter, or pelvis of the kidney, may present this remarkable feature when contrasted with the consequences of a rupture of the bladder; that whilst in cases of the latter injury, symptoms immediately arise directly pointing to the organ which has suffered; in cases of the former kind, (the lesion of the ureter or pelvis of the kidney,) no symptoms may immediately occur leading to a suspicion of injury to any part of the urinary apparatus.

The favourable result of the measure of withdrawing the urine from the cyst in which it was contained, by puncture of the abdominal parietes, would, I apprehend, justify the repetition of it in another case of the same kind. It may, however, be a question whether the best proceeding would be gradually to withdraw the fluid by repeated punctures of the cyst, and thus to favour the collapse and adhesion of its sides, upon the plan recommended by Mr. Abernethy for the treatment of lumbar abscess, or whether the urinary cyst should be punctured at its lowest part, in the view of maintaining the aperture free for some time, that the fluid may drain from it, upon the plan which has been adopted in cases of empyema, for the discharge of the fluid from the chest.

ACCOUNT

OF A CASE OF

CYSTICERCUS CELLULOSÆ OF THE BRAIN.

By DREWRY OTTLEY, Esq., Surgeon.

Communicated by JOHN FORBES, M.D., F.R.S.

READ NOVEMBER 28th, 1843.

The cysticercus cellulosæ is said by Cruveilhier to be of not very unfrequent occurrence in the brains of persons dying at an advanced age. During the earlier period of life, however, it is of extremely rare occurrence, and so little is known respecting the symptoms to which the presence of this hydatid gives rise, that the account even of a single case will form a not unimportant addition to our present scanty materials for a history of this disease. Indeed, as far as I have been able to discover, the case which forms the subject of the present communication is the only one recorded in which an opportunity was afforded to a medical observer of watching the progress of the disease from an early period of its existence; as it is also the only one in which, from the absence of every complication likely to disturb the cerebral functions, the symptoms were unquestionably due to the presence of these parasitic animals.

I shall now proceed, without further preface, to give an account of the symptoms observed and noted, from time to time, during the progress of the disease.

Mrs. J., about forty years of age, of lymphatic temperament, the wife of a chimney-sweeper, and resident in Exeter, had, for many years, been a sufferer from emphysema of the lungs, with frequent attacks of bronchitis, during which she had copious expectoration of glairy and frothy sputa.

In the early part of 1838 she began to complain of frequent giddiness, and of a dull stupifying pain in the head. In July of that year she suffered from a temporary numbness and loss of power in the right hand and arm, with some confusion of intellect, and a difficulty in articulating her words. Eight or ten ounces of blood were taken, by cupping, from the nape of the neck, and, for a time, the cerebral symptoms were relieved, but they returned again, and again, and after a time the giddiness became more constant, and the loss of memory and confusion of intellect more troublesome.

In 1839, in addition to the above symptoms, she became subject to fits, during which there was entire loss of consciousness, with convulsion of the limbs. The character of these attacks was different from that of ordinary epileptic fits; they were less sudden, both in their invasion and their termination, and the convulsions ceased and recurred as often as eight or ten times in as many hours, the stupor remaining during the intervals, and after their cessation. The recovery from them was slower also, for she would often remain for two or three days in a stupified state, with difficulty roused to understand a question, and incapable of replying to it, sometimes using wrong words, at others unable to pronounce the words she wished to employ.

During the last twelvemonths of her life, her sufferings became more constant. She could not venture to walk alone, for she would stagger as she went, or suddenly become so confused as not to know in what street she was walking; and more than once she was attacked with a fit in the streets. The pain in the head was now constant, though never *extremely* acute; her sight became dim; the convulsive attacks recurred more frequently; and, at length, towards the end of October 1840, after being frightfully convulsed for twenty-four hours, with the face twisted over the right shoulder, and the pulse becoming more frequent and feeble, she expired, without having had any return of consciousness. During the last year, she had suffered but little from the pulmonary affection.

Twenty-four hours after death, I examined the body in the presence of Dr. S. Budd, and Mr. Parker, of Exeter.

Necropsy.—The body was not much emaciated, and offered no other appearance worthy of notice externally.

The vessels on the surface of the brain were found moderately congested, and the sub-arachnoid cellular tissue was infiltrated with serum; but the most remarkable morbid appearance which the organ exhibited arose from the presence of numerous small fibrous cysts in the pia mater, covering the surface of the hemispheres, and dipping between the convolutions of the brain. These cysts were present on both sides, but were most numerous on the surface of the left hemisphere. They varied in size from that of a pea to that of a small peppercorn; they were seated in the pia mater, but had become partially imbedded in the grey matter of the convolutions. None existed in the white matter, in the central ganglia, nor in the plexus choroïdes. A few were found at the under surface of the cerebral convolutions; but none either in the cerebellum or medulla oblongata. The cerebral tissue around the cysts appeared natural, as to colour and consistence, and the brain generally, except for the presence of these animals, would have been termed healthy. There was, I should add, however, rather more fluid in the ventricles, and at the base of the brain, than is natural.

In the chest the lungs were found partially adherent to the parietes, and universally emphysematous, exhibiting well the rounded borders characteristic of that morbid state. They had lost their resiliency, and had a doughy feel, and afforded scarcely any crepitation on pressure. The lining of the bronchial tubes was congested, but not much thickened. In the heart the right auricle was dilated, the right ventricle thin, and the opening between these enlarged, but the valves were healthy. The left side exhibited nothing remarkable. No traces of the parasitic animals were found in the chest.

Further examination of the body was objected to by the family.

Several of the cysts which had been removed were afterwards examined, and each was found occupied by a vesicular worm, consisting of a posterior semi-transparent vesicle, and an anterior cylindrical portion which lay retracted in the former, like the finger of a glove turned inwards; the latter part was furnished at its extremity with a double circlet of hooks, round which were seen four oval suckers. The animal, in short, answered exactly to the cysticercus cellulosæ of Rudolphi, frequently found in some of the lower animals, and which has been so often described as to render it unnecessary that I should enter into further details respecting its structure. In some of the cysts the animal had evidently perished, and was undergoing decay, but still retained sufficient traces of its structure to leave no doubt of its identity; in these the cysts contained a turbid fluid and a small pellet of albuminous matter, the remains of the worm.

It may be not out of place to notice shortly the observations of Cruveilhier, in his "*Anatomie Pathologique*," in describing a specimen of this hydatid from the brain of an old woman of the Salpetrière Hospital.

He says, "I have met with only two kinds of hydatid in the human brain, cysticerci and acephalocysts. Cysticerci are much more common than acephalocysts, and generally belong to old age. I much regret not having made the most of my sojourn at the Salpetrière in this respect. I have found them pretty frequently in the plexus choroïdes, and have always been able to distinguish them from serous cysts, or those collections of serosity scarcely encysted, and sometimes containing pseudo-membranous flakes, which are so often met with in the plexus choroïdes of old folks. These pseudo-membranous flakes of a milky white, so strongly resemble the bodies of cysticerci, that one only attains to certainty respecting their real character by opening the cysts. After the plexus choroïdes, the sub-arachnoid cellular tissue is the locality in which I have most frequently found them. In other cases, again, these entozoa are contained in the substance of the brain, but always superficially, so that a portion of the vesicle appears above the surface of the organ. I have never found them in the substance of the white matter. Sometimes they are encysted, sometimes free in the cellular tissue; some of them have appeared as if they had been dead for some time, for I have found with the shrunken cysticercus an opaque matter filling the cyst.

"As regards the symptoms by which their presence would be revealed, I know nothing positive. Of the causes of their presence we are entirely in the dark, and the remedial measures have yet to be discovered."

ON THE

CAUSE OF THE OCCASIONAL PRESENCE OF SPERMATOZOA IN THE FLUID DRAWN FROM THE SAC OF COMMON HYDROCELE OF THE TUNICA VAGINALIS.

By JOHN DALRYMPLE, Esq.,
SURGEON TO THE LONDON OPHTHALMIC HOSPITAL.

READ NOVEMBER 28th, 1843.

The existence of spermatozoa in the fluid of encysted hydrocele was unknown to the profession until the publication of the paper by Mr. Liston, in the last volume of the Medico-Chirurgical Transactions. In his cases, spermatozoa existed in incalculable quantities, thousands, probably, in any single drop of the fluid; and although in the first observation, they all appeared motionless, yet in subsequent instances these bodies presented their ordinary vivacious movements, and the customary lashings of the caudal appendage. It is not my purpose here to inquire how these bodies came to be found in the fluid of encysted hydrocele, but to draw attention to facts subsequently observed, and since published.

At one of the meetings of the Medico-Chirurgical

Society, a paper was read by Mr. E. A. Lloyd, which described spermatozoa observed by him actively moving in the fluid of common hydrocele, and they have been since seen by Mr. Liston, myself, and probably many others, in the ordinary dropsy of the tunica vaginalis testis.

Some fluid was sent me by Mr. B. B. Cooper, to attempt to detect the presence of spermatozoa; I found it to be of a clear yellow colour, slightly unctuous feel, frothing much upon agitation, coagulated by heat into a firm albuminous clot, and by nitric acid affording a dense white precipitate. It was long before I found any spermatozoa in this fluid; at length I discovered well-formed spermatic bodies, though very sparsely mingled with the fluid. In about five different portions, each being about half a drop, I counted about two dozen of them, some with the body and tail cleanly formed, others with the ragged membranous-looking appendage at the junction of the caudal process with the body, which by some authors has been considered the remains of the original cell envelope, and as a proof of recent origin. (Vide Pl. III. fig. 2.)

The number of the spermatozoa, it will be observed, in proportion to the quantity of fluid, differed so materially from that mentioned in Mr. Liston's published communication, as to lead to the conclusion that the cause of their presence was essentially distinct; and in the discussion that followed the reading of Mr. Lloyd's paper, it was suggested that possibly some of the seminiferous tubes had been punctured in the operation for evacuating the fluid. That this is not an improbable solution of the difficulty in accounting for the presence of these bodies, I shall attempt to explain.

Spermatozoa have been but rarely found in the fluid of common hydrocele, for although they have been detected in some three or four cases, yet repeated examinations after various other operations have been made without their presence being discovered. Mr. Liston has instituted several microscopic examinations of the fluid of various hydroceles, and I have investigated others without finding a single one. If, however, the fluid of common hydrocele be examined from twenty-four to forty-eight hours after evacuation, and especially in hot weather, numerous filamentous and actively moving bodies may be observed, which may, not improbably, have been sometimes mistaken for spermatozoa. These active filaments are, however, vibriones which have subsequently become developed in the fluid after decomposition, and are identical with those found in common serum under similar circumstances.

Lastly, it is highly improbable that any careful surgeon would wound the body of the testis, in the operation of discharging the fluid of a hydrocele. I believe, however, the relative position of the vascular cord, vas deferens, and the epidydimis, in this disease, notwithstanding the excellent observations of Scarpa, are not very generally known. I shall, therefore, extract a few passages from that author's work on hernia, as highly valuable in illustrating my point.

Writing of the gradual increase of scrotal hernia, this illustrious pathologist says :—" On the tumour augmenting in size, as there is a proportional increase of the distension and compression caused by the hernial sac on the cellular substance, which encloses the spermatic vessels situated behind the hernia, it happens that these vessels are separated, and therefore change their position with regard to the hernial sac. For in proportion as the hernia increases in size, the spermatic cord undergoes a kind of decomposition, just as if the cellular substance were drawn in two opposite directions. On which account, in a very large scrotal hernia, the spermatic artery, the vas deferens, and spermatic vein, are no longer found united into one cord behind the sac, or between its posterior side and the sheath of the cremaster muscle, but are separated, and sometimes even removed to a considerable distance from each other."

" Le Dran wrote, that in operating on a large scrotal hernia, he met with the spermatic cord on the anterior surface of the hernial sac."*

" Having demonstrated that, in scrotal hernia of long standing and of large size, the spermatic cord, in consequence of the constant pressure exercised on it by the hernial tumour, is at last separated in such a manner, that the artery and the vas deferens are found on the one side, the veins on the other side, removed from the posterior to the lateral part of the hernia, and even to the anterior surface of the sac, I conjectured that the same separation and change of position of the vessels of the cord ought to take place also in cases of inveterate and large hydrocele of the vaginal coat of the testicle, which coat supplies the place of the hernial sac in congenital scrotal hernia; in which disease it is an undoubted fact, that the separation and transposition of the vessels of the spermatic cord occur in the same manner as in *common* scrotal hernia. This pathological truth I have in fact repeatedly met with in the dead bodies of those who have been affected with a large hydrocele for a long time.

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* Operation de Chirurg. p. 127.

"I have not added any remarks, with regard to the danger of wounding the spermatic vessels in a case of operating on an old and large hydrocele by puncture or incision, as I have done in detail in speaking of the precautions which it is proper to take in making the incision into the sac of an old and large scrotal hernia, because the circumstances with regard to the transposition of the vessels, being the same in both cases, the same precepts would be understood as applicable to both diseases; and because, although the puncture of a hydrocele has been very frequently followed by a copious effusion of arterial blood into the vaginal coat, no well-established fact was, to the best of my knowledge, referable to the injury of the spermatic artery." *

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* Operation de Chirurg. p. 75.

Having thus detailed Scarpa's discovery of the altered relative position of these vessels, I will proceed to describe a preparation in my possession, which fully illustrates this point.

I had an opportunity of removing from the body of a man recently dead, a common hydrocele of the tunica vaginalis, and before opening the sac, I injected the vas deferens with mercury. This done, the front of the sac was opened, the fluid discharged (but not examined, for this happened before our attention was called to the subject by Mr. Liston), and the cavity inflated, tied up, and when dried, a large portion of the tunica vaginalis was cut out, to expose a view of the interior.

The body of the testicle was situated at the bottom, posterior, and somewhat internal part of the cavity; and the vascular cord was seen running along the posterior wall of the sac, and emerging at the upper part, far behind the most prominent part of the swelling. The vas deferens, however, was situated quite external to this, and removed from the vascular cord nearly one inch. At the lower part, it approached the testis, made a few of its larger coils, from which commenced the lower head of the epidydimis. As the latter body ascended again, it was still further separated, or dissected as it were, lying upon the lateral aspect of the sac, and distant from the body of the testicle about an inch and a half; it continued to ascend, until it reached to nearly an inch and a quarter above the testis, where the position of parts was as follows:—The testis and vascular cord at the most posterior part of the sac; the vas deferens next to it, but distant about half an inch; and lastly, the epidydimis still more external, and three quarters of an inch more external and anterior to the vas deferens. At the upper part, the epidydimis suddenly crossed the vas deferens, and descended in a curved line towards the body of the testicle, in which it finally merged. (Vide Pl. III. fig. 1.)

From this description (which is taken not from an old and large hydrocele, but from one of very moderate size) it will be seen that the epidydimis and vas deferens are placed by no means out of danger of being punctured by the trochar, and the wounding of even a single tube might well afford the few spermatozoa found in the specimens of fluid referred to above, the more especially when we remember the squeezing or pressure often made to evacuate the few last drachms of the contained fluid.

Important practical hints may be deduced from this disposition of parts, as it must necessarily lead to a very careful examination of the surfaces of the swelling, whether by transmitted light, when the hydrocele is tolerably transparent, or by accurate manipulation of the scrotum, prior to selecting the point of puncture in this apparently trivial operation. It appears to me that the position at which the trochar should be entered, ought to be made much more towards the mesial line than is usually adopted, and that the antero-lateral or antero-external aspect should in future be avoided, unless after the most careful and accurate examination the true position of the parts should be determined.

CASES
OF
CARCINOMA OF THE THYROID GLAND.

By CÆSAR HAWKINS, Esq.,
SURGEON TO ST. GEORGE'S HOSPITAL.

READ NOVEMBER 28TH, 1843.

CARCINOMATOUS diseases of the thyroid gland are evidently not common from the tenor of the remarks met with in different modern writers. "Malignant diseases," says Mr. King,* "sometimes encroach upon and *very rarely* develope themselves in this body." It is remarked by Dr. Walshe, in his excellent account of cancer in the Cyclopædia of Surgery, "unless as a complication of pre-existing encysted disease, or other form of bronchocele, cancer of the thyroid gland is *singularly rare.*" Scarpa entertained the idea that malignant disease of this organ only took place as the consequence of preceding alteration of the parotid gland or other adjacent part.

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* Guy's Hospital Reports, vol. i. 432.

I am inclined to believe that the thyroid gland may be more often the seat of primary scirrhus than is usually supposed; and that I have seen several cases which were in all probability examples of this disease. The following case for instance was, I think, a scirrhous tumour of this body.

Benjamin Young, æt. 61, was admitted into St. George's Hospital under my care, June 28th, 1837, and the note-book observes, that " he had a very large bronchocele, occupying the whole of the anterior part of the neck, extending laterally about an inch and a half beyond each mastoid muscle, and vertically from the os hyoides to the sternum. He first perceived it about six years ago, and his health has generally been good. He has a trifling cough, but the tumour considerably affects his breathing. The tumour is particularly hard and fixed in situation, and is not tender." The effects of the tumour varied from time to time as in all bronchoceles; and a few days after admission he complained much of weight and pain in the chest, with difficulty in breathing and lying down, and occasionally of noise and throbbing in the neck; which symptoms were on this and subsequent occasions relieved by a blister to the chest. These chest symptoms, however, were probably in part owing to valvular obstruction of the aorta, aggravated by irregularity of increase in the tumour. He took iodide of potassium internally without advantage; and the local employment of mercurial ointment and iodide of potassium was tried, but made the tumour more painful. He continued in the hospital till the end of August, at which time the tumour was larger and harder, and he could scarcely lie down at any time from its pressure on the larynx; his countenance had become very anxious, and he suffered a good deal from pain in the tumour, extending upwards to the temples: and the general irritation was shown by an increase of pulse from 65 to 100. Of his subsequent history I am ignorant, as he left the hospital to go into the country.

In this case, and in others which I believe to have been of the same nature, the age of the patient has been from forty-five to sixty-five when the disease appeared; at which period of life ordinary bronchocele very seldom takes place, and the tumours most likely to present themselves are the serous tumours developed in or near the thyroid gland, or the cartilaginous and osseous degenerations sometimes observed in elderly persons, and lately described by the term euchondroma. From the former the distinction is sufficiently obvious, as the existence of fluid is easily ascertained by the finger or the grooved needle. From the latter, the tumour may be more difficult to distinguish, as the hardness is nearly equal in the two cases, but the scirrhous tumour seems to me to be more uniform in its texture, while the other is considerably harder at one part than another, and the surface is smoother and more regular in the scirrhous tumour than in the cartilaginous and bony tissue of the other disease. The scirrhous tumour has appeared also to be more completely fixed to the larynx, and to the muscles around it, than in any other tumour of this gland, especially in the latter stages, when the cellular tissue is probably beginning to be converted into the same disease. All tumours of the gland necessarily move with the larynx in speaking and swallowing, but in the scirrhous tumour the motion of the larynx is itself interfered with, and therefore it not only rises less freely, but the respiration and deglutition of the patient are more affected than with most other tumours, even when of much larger size. From this cause perhaps in part, and in part from the essential nature of the disease, the patient has an expression of greater suffering and distress in his countenance, than with tumours of other kinds, and although usually of good health when the tumour first appears, he acquires, in the latter stage of the complaint, the usual sallow complexion of one labouring under malignant disease.

But it will naturally be said that these remarks must be only conjectural, unless the final termination of the tumour was known. In the following case, the appearance and symptoms of the disease, on the patient first coming under my care, were as nearly as possible the same as in the case already narrated, and in four others, in which I felt equally convinced of the nature of the tumour; but I was fortunate enough, from the peculiar manner in which the disease spread, to have an earlier opportunity than I otherwise might have had, of verifying the diagnosis which I had formed of the tumour on his first admission, while the patient still had the appearance of perfect health. I have thought therefore that the following history might be deserving of the attention of the Society.

Thomas Holder, æt. 50, was admitted into St. George's Hospital May 17th, 1843, having the appearance of perfect health, with a considerable enlargement of the whole thyroid gland, but particularly of the right lobe, which projected upwards more than the left; the tumour was uniformly smooth on the surface, and very firm and solid; it was completely fixed to the larynx, and sufficiently free from attachment to other parts to move with all the motions of the larynx and œsophagus; the skin was unattached and unaltered in colour, and the superficial veins were large. He breathed with some noise, and had a slight cough, but could respire naturally when told to do so. Deglutition was performed with somewhat more difficulty than respiration, although the larynx and trachea were thrown very much to the left side of the neck, nearly two inches perhaps out of the central line. The tumour was free from pain and tenderness. The patient was deaf and dumb, so that a full history could not be obtained at first; but it was learned that the first appearance of the tumour was only about five weeks before his admission.

The nature of the tumour appeared to me evidently to be carcinomatous, and probably scirrhous, and that it did not admit of surgical relief by operation, in consequence of its intimate connection with the larynx. I determined however to admit him, and observe the effect of iodide of potassium, which was employed both internally and locally; but it was not continued for more than a month, and was intermitted twice in that time, on account of attacks of slight fever, with great pain in the head, which were supposed at first to be owing to the medicine, but were doubtless attributable to the impeded circulation through the brain, as the same attacks occurred after it was discontinued.

The patient at first thought himself better, and the tumour smaller, but the difference was very trifling, and at the end of a month its size had evidently increased. On the 13th of July it was perhaps half as large again as on his admission, and some pain was complained of in the upper part of the tumour. He was observed also to be getting thinner about the middle of June, and had become considerably emaciated before his death, which happened on the 23rd of July.

The difficulty of swallowing was considerable the whole time, but occasionally increased spasmodically, and was then relieved by a small blister to the outside of the larynx; but for the last two or three weeks the dysphagia was constant, and prevented any solid food from being taken, and even liquids were swallowed with difficulty, so that he frequently was obliged to leave the table from threatened suffocation in the act of eating, and from vomiting, which sometimes occurred regularly at a certain period after eating, and at other times took place violently during his meal.

Besides the vomiting, he suffered much from pain in the epigastrium and hypochondria, and had tenderness over the stomach, while the respiration seemed little interfered with, so that he could inspire quite deeply without cough or pain, and the sounds were natural on percussion, or when examined by the stethoscope.

About the middle of July, the pain being then much increased, he began to vomit some coagula of blood, but this again lessened while he was taking some lead and opium. For a few hours before his death he had much difficulty of breathing, and became of a livid colour, from this cause.

The following account of the *post mortem* examination is taken from my clinical book.

Upon the anterior surface of the windpipe was a large tumour, which extended from the thyroid cartilage to the sternum. Laterally it projected beyond the sterno-mastoid muscles, the fibres of which, as well as those of the sterno-hyoid, omo-hyoid, and sterno-thyroid muscles of both sides, were expanded over, and partly imbedded in the tumour. The right internal jugular vein, common carotid artery, and pneumogastric nerve, were separated from each other by the pressure of the morbid growth. The vein was closely adherent to the tumour, and its coats, in one place, had been absorbed, and a soft part of the tumour projected into its interior, and a large clot of blood was firmly attached at this part. The artery was deeply imbedded in the tumour, and the pneumogastric nerve much flattened, and its fibrils separated so as to present a plexiform appearance. (Pl. I. fig. 1.)

The thyroid gland had nearly disappeared, the only part which was left being a small portion of the left lobe intimately joined to the tumour, so as to show that they were originally portions of the same body, and this portion that remained was perfectly natural, and there was a complete line of demarcation between the two structures. The anterior surface of the windpipe was healthy.

Posteriorly the morbid growth had extended to the pharynx and œsophagus, and to the cellular tissue connecting them with the larynx and trachea. The posterior part of the œsophagus was healthy, but the anterior part presented a large, irregular, ulcerated mass, (see Pl. I. fig. 2.*) extending from the arytæno-epiglottic ligaments to the first three or four rings of the trachea, and projecting into the interior of the pharynx and œsophagus, its surface being of a dark green colour, and covered with shreds and portions of sloughs, which were very fœtid. The larynx and trachea had been quite pushed over to the left side, forming a curved line, and the right arytæno-epiglottic ligament was much thickened and altered in texture, and immediately below the cricoid cartilage a large ulcerated opening led into the trachea.

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* The preparation was also exhibited to the Society.

Externally, the tumour presented an irregular lobulated appearance, the greater part being situated on the right side; internally, it presented the structure of genuine scirrhus; it was remarkably firm, in some places of a light yellow colour, and in others of a pale red tinge; the variety of scirrhus which it most resembled being the solanoid form; in fact, the section was very like that of a red potatoe.

There were many small encephaloid tubercles at the base of both lungs, and in the cellular tissue under the costal pleura.

The brain was wet, and the bloody puncta large, and the veins and sinuses were gorged with dark-coloured blood.

The stomach was perfectly healthy, and rather small; the liver healthy, with a small serous cyst on the surface of the right lobe; the other viscera were healthy.

The symptoms enumerated, as caused by this tumour, included tenderness and pain in the epigastrium, vomiting after meals, and latterly hæmatemesis, which naturally led my attention to the stomach. During the first few weeks, careful examination detecting no hardness or swelling, and the symptoms not being constantly present, I did not think there was cancer of that organ; but during the last few days, the repeated vomiting of blood, and the great pain and tenderness of the epigastrium, and in that region only, made me express an opinion that there was most probably cancer of the stomach. The difficulty of swallowing, and the vomiting of blood were, however, satisfactorily accounted for by the ulceration and sloughing of the œsophagus and pharynx; but whence arose the marked pain and tenderness exactly over the stomach; which were more complained of by the patient than any other symptom, and existed even at the times when there was a temporary cessation of nausea?

Looking to the highly expanded state of the fibres of the right pneumogastric nerve, is it not very probable that the symptoms in question depended upon this circumstance, the pain being referred (as with pressure on the spinal nerves) to the part where the nerves are finally distributed below the seat of pressure and irritation, which would in this case be chiefly the pyloric end of the stomach?

I think I never saw the larynx so much turned out of its natural course by any tumour, as in this case, and dissection showed us also a cancerous degeneration of the side of the rima glottidis, and an ulcerated opening into the trachea; but yet the difficulty of respiration was never urgent till just before his death, and cough was very little complained of throughout the whole illness. He could always expand the chest freely, and without pain, and the stethoscopic signs showed only bronchitic effusion at the times that the obstruction about the glottis was more marked than usual. In fact, where there has been no pleuritic effusion, and no scirrhous alteration of the pleura, the little distress occasioned by encephaloid tubercles scattered through the parenchyma of the lungs is often very remarkable.

In this case the scirrhous degeneration occupied the whole of the thyroid gland, except one small portion of the end of the left lobe, which seemed perfectly healthy. In a case published by Velpeau, and consisting probably of encephaloid rather than of scirrhous texture, "The thyroid gland contained," it is said, "about a dozen cancers," all of which were easily separated from the substance of the gland, which was itself perfectly healthy. It is said by Dr. Walshe, who quotes this case, that cancer of the thyroid gland is generally of the scirrhous kind. It is remarkable, however, that in a modern work, which contains more drawings of the various diseases of the thyroid gland than any other work, ("Atlas der Pathologischen Anatomie," by Dr. F. Albers, of Bonn,) while there are several examples of medullary or hæmatoid disease, there is not one, the texture of which looks like scirrhus. There is one called "Carcinoma Glandulæ Thyroidiæ;" it appears however not to be malignant at all, but to consist of the cellular variety of bronchocele, at any rate if malignant, it was not scirrhus. Of the instances of "Fungus Hæmatodes Glandulæ Thyroidiæ," described by this author, one resembles the case I have related, in this respect, that it had increased on each side of the windpipe, so as to adhere apparently to the œsophagus, but the interior of the tube remained quite healthy, and there is a large sloughy mass in the front of the tumour, instead of the sloughing of the posterior part of the tumour into the œsophagus and pharynx, shown in my own case.

The only case which I have myself seen examined, of fungous or medullary disease of the thyroid gland, was one in which one lobe of this body was diseased, and I place the preparation on the table of the Society to mark the contrast between this variety, and the scirrhous kind of tumour before described. In this case, the patient, a woman, 55 years of age, was admitted into St. George's Hospital, under the late Mr. Rose, on the 9th of November 1827, for a tumour of the thyroid gland, but there was also a tumour on the head, which had been punctured by a surgeon three weeks before her admission, and from which glairy serum, mixed with blood, escaped on the introduction of the probe. To this she paid little attention, and said, when questioned about it, "Oh, Sir, that is only a little tumour." It was the cause of her death, however, about sixty hours after her admission, being fungus hæmatodes of the parietal bone. The preparations of both parts are preserved in our Museum, and the texture of the tumour of the bone was nearly the same as that of the thyroid gland, soft, elastic, dark-coloured, and with a mixture of cells of serum, or bloody fluid, and no part of it is possessed of the dense, firm, and white texture of the scirrhous tissue seen in the other case.

Whichever variety of carcinomatous disease may be the most frequent, it does not appear, from examination of pathological collections, that either of them is common; and wherever preserved, the preparations of the two varieties appear to show the same marked contrast, as in the specimens laid before the Society. There are, for example, two preparations of malignant disease in the Museum of the College of Surgeons, one of which came from Mr. Howship's collection, and shows a medullary tumour of large size, entirely surrounding the larynx, soft, spongy, and full of medullary substance. The other is an apparently scirrhous tumour of firmer structure, closely adherent to the larynx and trachea, for several inches, and ulcerating into the tube, which is, in part, converted into scirrhous texture.

APPENDIX TO THE FOREGOING PAPER.

Case of Schirrhus of the Thyroid Gland. By R. WILSON BROWN, ESQ., *Surgeon to the Bath United Hospital. Communicated by* SIR B. C. BRODIE, BART. *Read May 28th*, 1844.

MR. G———, aged 60, of active habits, and of previous good health, began, in December 1842, to suffer from uneasiness about the larynx, accompanied by slight cough and hoarseness, but without much general illness.

A little before Christmas 1842, having caught cold, all the symptoms were aggravated, the cough became violent, sometimes sharp and stridulous, at others spasmodic, or like the bleating of a goat; the voice feeble, and little above a whisper.

He gained scarcely any relief from treatment, such as from leeching, the use of mercury, blisters, &c.

A hard swelling presented itself in the situation of the left lobe of the thyroid gland. The swelling was not prominent nor well-defined externally, but appeared to extend internally, and press upon the œsophagus, causing great uneasiness, and great difficulty of deglutition. Mr. G. remarked that his throat seemed to be bound, as it were, with an iron hoop. The integuments in the neighbourhood became thickly studded with hard tubercles of a cancerous character.

Internally the disease continued to make progress, the difficulty of deglutition increased, the cough became more violent, convulsive, and almost incessant, with copious muco-purulent expectoration, streaked with scarlet blood. A careful examination of the chest furnished no evidence of any disease of the lungs.

Emaciation gradually took place to a very considerable degree, and eventually death, in June 1843, after much suffering.

Examination of the body thirty-eight hours after death, on June 24th, 1843.—The emaciation was very considerable. Numerous hard tubercles were seated in the skin, covering the throat and part of the chest and abdomen. The seat of the principal disease was in the left lobe of the thyroid gland, which was somewhat enlarged, and converted into a mass of carcinomatous structure, white, hard as cartilage, and with some gritty particles dispersed through it. The chain of lymphatic glands in the neighbourhood, on both sides, had undergone a similar change, and by these the œsophagus was compressed and reduced in diameter, and the larynx so firmly fixed in its situation, as to prevent any change of its position.

There was not any ulceration of the inner surface of the œsophagus, nor any communication between it and the trachea. There was some thickening of the epiglottis, but not any disease of the trachea.

The lungs had scattered through their substance, and over their surface, several small white tubercles of cartilaginous hardness. The mucous lining of the air-tubes was more vascular than natural, and they contained some frothy mucus. The lungs were otherwise healthy.

A small quantity of serum was effused on each side of the chest, and in the pericardium.

The liver contained many tubercles of the same character as those found in the lungs; they were small, none larger than a filbert, and not softened.

The stomach was much contracted. Numerous glands about its lesser curvature, in the lesser and also the greater omentum, were converted into a carcinomatous structure of the kind already described.

The kidneys and other abdominal organs were healthy.

The cutaneous tubercles on various parts of the surface of the chest and abdomen were examined, and found to be composed of the same firm, white, carcinomatous structure as that in the thyroid gland and its vicinity.

ALARMING

SYNCOPE,

FROM THE ADMISSION OF AIR INTO A VEIN DURING AN AMPUTATION AT THE SHOULDER JOINT.

By BRANSBY B. COOPER, F.R.S.,

SURGEON TO GUY'S HOSPITAL.

READ DECEMBER 12TH, 1843.

Eliz. Cousins, æt. 19, single, was admitted into Guy's Hospital on the 17th of May 1843, under my care, for an enlargement in the middle third of the right humerus, the swelling being particularly prominent on the outer and posterior part of the arm.

The general aspect was pale, the frame somewhat emaciated, her hair and eyes dark; in short there was every indication of a strumous diathesis. She stated that she has generally resided in London, that her health has been pretty good, although never robust, and that she has always enjoyed ample means of support. Three years since, she had an abscess in the left axilla, which, on being opened, quickly healed. Her friends describe her as being quite free from hysteria, but on her admission into the hospital her manner certainly pourtrayed an hysterical tendency.

She dates the commencement of her present disease eighteen months previous to her admission into the hospital, and states that the first symptom was a peculiar gnawing pain like rheumatism, extending from the shoulder to the right hand. This symptom continued until about six weeks ago, when the upper arm began to enlarge, more especially about its centre. The pain now increased to such an extent, and more particularly at night, that her rest was broken; and at the same time the swelling gradually enlarged, until it attained its present size.

On examination, the tumour afforded to the touch a firm and uniform hardness, attended with slight pain when pressed. The bone, above and below the swelling, did not appear to be implicated in the disease; but she complained of aching pain along the fore-arm; the glands in the axilla were slightly enlarged. The integuments over the swelling were healthy. There was impaired motion both of the elbow and wrist joint.

After a careful examination of every circumstance connected with the case, I came to the conclusion that it was a malignant disease of the bone, and that the only chance of saving the life of the patient was by amputating the limb at the shoulder joint, which I considered preferable to sawing through the diseased humerus, although there was sufficient space to have allowed of such an operation.

I thought it advisable, however, to keep the patient for a few days in the hospital, before I subjected her to this operation, and therefore prescribed the following treatment:—Twelve leeches to be applied to the affected part; a grain and a half of calomel, and half a grain of opium, to be taken at bed time, and a draught of iodine and iodide of potassium in the infusion of gentian, twice a-day. The pain was relieved by the application of the leeches, and better nights obtained from the influence of the calomel and opium. In the use of these remedies she persisted until the 23rd of May, on which day I removed the arm at the shoulder joint. The operation was performed by making a double flap, the subclavian artery being commanded by pressure upon the first rib; it occupied less than a minute; there was no loss of blood, and the patient bore it with great fortitude.

The subclavian artery was immediately secured; but compression was still retained upon the first rib as there were small vessels requiring ligature. I then proceeded to remove a gland from the axilla, which was somewhat enlarged, and while dissecting it from its cellular attachments, I distinctly heard a peculiar gurgling noise, like air escaping with fluid from a narrow-necked bottle, and at the same instant the patient fell into a state of collapse, threatening immediate dissolution: the countenance was deadly pale, the pupils fixed, and inobedient to light; the pulse quite small and fluttering, although at intervals regular; the respiration hurried and feeble, and, at irregular intervals, attended with a deep sigh. The patient was directly placed in the horizontal posture, the flap covered over the wound, and retained by plaister. Cold water was dashed over her face, ammonia held to the nostrils, and a sponge filled with wine applied to the lips; but an hour elapsed before she was sufficiently recovered to be removed from the Operating Theatre.

Upon being placed in bed, she passed her fæces and urine involuntarily;—some wine and camphor julep, with half a drachm of laudanum, were given to her. During the reaction coming on, she uttered a continual whining cry, and maintained a constant motion of alternate flexion and extension of the right leg, while the left remained perfectly quiescent. She continually complained of pain, extending up the right side of the head and neck. Her feet being cold, warm bottles were applied, and twenty drops of liq. opii sedativus given. At four o'clock the wound was dressed, when some small vessels were secured, and a nerve liberated which had been included in one of the ligatures; and to which, perhaps, the pain in the neck and head might be partly attributed. The edges of the wound were brought together and maintained in apposition by silk sutures and adhesive plaister. Twenty drops of laudanum were ordered: to be repeated if necessary.

Wednesday, Eight o'clock, a.m.—When she awoke, all the symptoms were much relieved; pulse 150, small, irregular, and compressible. Tongue moist and white; profuse perspiration over the whole body—keeps her eyes constantly closed.

Two, p.m.—The symptoms much the same as in the morning; still continual action in the right leg, with apparent loss of motion in the left. Pulse 140, feeble—seems inclined to dose, but answers perfectly coherently when spoken to—pupils still somewhat dilated—tongue moist—diaphoresis not so profuse. Beef-tea and arrowroot with wine ordered for her, when she desired it, as she takes nourishment freely.

Eight, a.m., Thursday.—Has had a better night; dosing, but waking up at intervals with a whining cry—continues to keep her eyes constantly closed—diaphoresis less—pulse 140—still irregular and feeble—tongue moist—bowels have not been opened since the operation, but she voids her urine freely—action of the right leg continues; the left still motionless.

On the 26th, the stump was dressed—pus of an unhealthy character exuded from the wound, which, however, at the upper part had united for two inches.

Her state was variable for the following six or seven days; the nights were restless, and there were occasional febrile exacerbations. The action of the right leg continued, and, on one occasion, there were involuntary flexions of the left, which she had not the power of extending.

Opium was given freely with much relief, and she was allowed a nourishing diet.

On June 3rd, she was much better, and from that time rapidly improved. Tonics and support of every kind were freely exhibited; the stump continued progressively to heal; and on the 20th day after the operation, the ligature came away from the axillary artery.

On the 25th day she was able to sit up in a chair and take her dinner. Complains of great numbness and loss of power in the left leg, which she drags after her; but it is as sensitive as the right, and while lying in bed, if pinched, she forcibly draws it up. On the 3rd of July, she was sufficiently recovered to leave the hospital, having no other unfavourable symptom than a slight dragging of the left leg. I have seen her several times since at Guy's in perfect health, and looking infinitely better and stronger than she did at the time of her admission.

This patient was re-admitted into the hospital the latter end of November 1843, for a tumour on the left scapula, of a similar morbid structure to that in the right arm, for which amputation had been performed. This tumour gradually increased until the period of her dissolution—the end of January 1844; when it had reached the upper part of the dorsal region of the spine. After having experienced, for a day or two, great pain in the lower extremities, they became paralysed, and she had, at first, inability to void her urine, and afterwards incontinence of it, with torpor of the bowels. She had a constant cough, and pain in the right hypochondrium, extending to the pit of the stomach. There was dullness on percussion in the right side of the chest; and a few days after that had been observed, a small hard tumour appeared over the fifth rib on this side. The treatment consisted chiefly in giving sedatives, with occasional mild laxatives.

Post mortem examination, forty hours after death, January 26th, 1844.—A large fungoid mass was found, occupying a great extent of the right cavity of the chest. The tumour growing from the left scapula and extending to the posterior part of the vertebral column, adhered principally to the second dorsal vertebra, the arch of which was pressed inwards, so as to encroach upon the vertebral canal at that part. The medulla spinalis appeared quite healthy, although it must have been slightly compressed by the vertebral arch, at the point above mentioned. The structure of the brain was perfectly healthy, as was that of the viscera generally.

Remarks.

Upon a mature consideration of the anomalous symptoms described in the case recited, I have no doubt in my own mind that they are to be attributed to the admission of air into the axillary vein during the operation; but whether the effect it produced upon the constitutional powers of the patient are referable to its influence upon the heart, brain, or both, I must leave to the consideration of the Society to decide.

Although the inflation of the veins has long been known as a means of destroying life in the lower animals, and notwithstanding the series of experiments made by M. Nysten in 1811, undertaken for physiological purposes, still it was not until the year 1818 that the attention of surgeons was first invited to the subject of the entrance of air into the veins of the human subject during the performance of surgical operations, by M. Beauchêne, and, according to his opinion, one of the causes of death.*

The Royal Academy of Medicine of Paris considered the subject as one of such importance that they instituted a Commission to inquire into the circumstances under which air could be taken into the veins—what the symptoms indicating its presence,—and what the remedies to be adopted.

To ascertain the conditions necessary for the entrance of air into the veins, a series of experiments were performed upon animals, principally dogs, which seemed to prove that when an opening is made into a vein, at any point where there is regurgitation of blood into it from the force of the heart's action, (termed venous pulse,) that air is immediately admitted, and that even at a short distance from this point an admission of air may take place. But if the opening be made at a greater distance, and beyond the influence of this pulsation, no air will enter although the opening be not closed. From these experiments we may also learn that the venous pulse does not exist in the brachial and axillary, but is present in the subclavian and lower third of the jugular veins. It therefore follows, that although, in certain positions of a limb, air may enter an opening high up in the axillary vein, as being so near to the subclavian, yet it is not found, by experiments on lower animals, that it is capable of entering the brachial veins, nor indeed in any point a little removed from the site of the venous pulse, not even if the opening in the vein be kept patent.

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* It seems, however, that the fact of an injurious influence from the admission of air into the veins was known to Morgagni as long back as 1517, but had been forgotten, notwithstanding he has related a case.

The Commissioners found that the sound indicative of the passage of air into the veins was similar to that produced by the lapping of a dog or cat, and that this sound was synchronous with the inspiration; but sometimes, when more frequent, accompanied the diastole of the right ventricle, and may be heard occasionally by auscultation after the air has been admitted as a "*bruit de soufflet*," and then is synchronous with the action of the heart, and not with respiration. The constitutional symptoms observed in the human subject differ somewhat from those in lower animals: in the former, faintness immediately supervenes, the pulse is weak, small and fluttering, the respiration laborious and embarrassed, epileptic symptoms occur, and, unless reaction takes place, death quickly follows. In the latter, on the contrary, on the spontaneous admission of air into the veins, the symptoms of embarrassment do not show themselves until a longer period has elapsed from the first introduction of the air: the animal then utters cries, convulsions and tetanic spasms follow, an involuntary discharge of urine and fæces takes place, and soon after, death; although sometimes even after these urgent symptoms the animal will recover.

From the experiments alluded to, it appears that to destroy life in an animal, not only must the quantity of air injected into the veins be considerable, but it must be thrown in with a certain degree of force. Now in the cases recorded, where persons have been destroyed by the admission of air into the veins during surgical operation, neither force could be employed, nor can it be supposed that any very large quantity could have been admitted. Does it not therefore argue that there must be a certain condition of the patient induced to facilitate the entrance of the air, depending partly perhaps upon the oppressed, if not suppressed, action of the heart and lungs, suspended in their function from the effects of fear upon the nervous system, a state from which the lower animals are comparatively exempt? May not also this moral influence alter the point of venous pulsation, so as to render wounds of the veins in the human subject more dangerous than in the lower animals?

The symptoms in the case which I have had the honour to read this evening, are so similar to those related as the result of the experiments by the French Commissioners, on the introduction of air into the veins of the lower animals, as well as in the cases recorded of death in the human subject from the same cause, that I conceive there can be little or no doubt of the diagnosis which I have formed. Indeed, the absence of any other sufficient cause for the production of such overwhelming symptoms would alone render the case sufficiently clear, without dwelling on the fact of the peculiar sound which I so distinctly heard, and at the moment the pressure was taken off the vessels.

It may also be recollected that all the symptoms corresponded to those which have been observed to occur in cases of the entrance of air into a vein, and in some of which, examination *post mortem* afforded an opportunity of ascertaining the cause of death to have arisen from this circumstance.

ACCOUNT

OF

A HORN DEVELOPED FROM THE HUMAN SKIN;

WITH OBSERVATIONS ON THE PATHOLOGY OF CERTAIN DISORDERS OF THE SEBACEOUS GLANDS.

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READ JANUARY 23RD, 1844.

In the course of some observations lately made with a view to determine the seat of disease in certain affections of the sebaceous organs, I became acquainted with some interesting phenomena in relation to the production of the sebaceous secretion. I found, that which might *à priori* have been imagined, that the secretion varied in its qualities in different individuals; but I was unprepared for the revelation of the fact, that several modifications of disorder of the sebaceous organs were attributable to this alteration alone. To explain the views which I have been led to form on this subject, I shall describe briefly the mode of production of the sebaceous secretion, its microscopic appearances, some instances of abnormal secretion, and finally the process of formation of abnormal horny tissue, illustrating the latter with the detail of a case of human horn which recently fell under my notice.

The sebaceous substance is secreted from the blood, through the agency of the cells which compose the epithelial lining of the gland, as is the case probably with all the secretions of the body; but there is this difference between the sebaceous and other secretions, namely, that the former is semi-solid, while the rest are fluid; the solidity or density of the sebaceous matter being due to the great number of empty and more or less distended cells which compose its mass. The sebaceous cells are developed in the same manner with epithelial cells in other situations, from a cyto-blastema in which the young cells appear. The contents of the cells vary at different periods of their growth; the young cells contain a homogeneous and limpid fluid, which becomes flocculent from coagulation as growth proceeds, and finally granulous; while in the perfect cells, minute oil-globules in greater or less numbers may be perceived. The function of the cell, from its earliest period of existence to full maturity, is one of imbibition from the blood of albuminous, oleaginous, and saline elements combined and in solution; towards maturity these elements separate from each other, and may be detected as granular matter and oil-globules; but when maturity is completed, the function of the cell is reversed, an outgoing or transuding current is established, and its contents become dispersed between the cells, and in the excretory cavity of the gland. At the close of this process the cells are more or less emptied of their contents, and many of them are flaccid and flattened.

From the above description it will be apparent, and the fact may be demonstrated by the microscope, that the sebaceous substance is composed of cytoblasts and cells at every stage of development, of emptied and broken epithelial cells, of oil-globules of various magnitude, of crystals of stearine, of pigment granules, of granules of albuminous matter, of salts which crystallize on desiccation of the secretion, and of more or less of albuminous fluid mingled with the other constituents, and bestowing, with the oil-globules, softness on the mass. The quantity of the sebaceous matter varies in different individuals as to its density and apparent composition. In persons who possess an actively secreting skin, the quantity of sebaceous substance is considerable; it is soft, homogeneous, and contains numerous full and empty cells. But in those in whom the skin is torpid, the secretion is dense; it consists of masses which are modelled on the hairs contained in the follicles, or on the walls of the tubuli of the glands, and the majority of the cells are flattened and condensed into a membranous structure. It is well known that the follicles which contain the sebaceous substance are at the same time the follicles of the minute downy hairs which are produced on every part of the body, with the exception of the palms of the hands and the soles of the feet, and the influence which the state of the sebaceous substance exerts on the destiny of the downy hairs is interesting and curious. Many of these hairs never rise above the level of the skin, but, as soon as they have reached the mouth of the follicle, are shed by their formative pulp, and become mingled with the sebaceous substance. When the function of the skin is active, the sebaceous substance is gradually expelled from its follicle, and at the same time the fallen hair; but if the skin be torpid, and the sebaceous substance dense and dry, the hair will be retained, and with it many others which have grown to their usual length, and have been cast like the first. Imprisoned in this manner, I have frequently seen twenty or thirty minute but perfect hairs collected into a bundle, and enclosed in inspissated sebaceous substance; and Dr. Simon of Berlin, who was the first to make this observation, relates that he has sometimes remarked forty such hairs.*

It is but natural to expect that the contents of the cells of the sebaceous substance should undergo a change, in accordance with the state of health of the skin, or of the individual, and perhaps also in conformity with the chemical constitution of the blood. I shall allude in this place to two only of these changes. The first is that which occurs in the disease called molluscum contagiosum, a disease consisting in the development upon the skin, of small sebaceous tumours in variable numbers. In this affection the tumour results from the solidity of the contents of the cells of the sebaceous secretion, the solidity being so great as to preserve the form of the distended cells, and consequently to dilate the follicle with the ducts of the sebaceous glands. There is, besides, a deficiency of oil-globules and of albuminous fluid, and consequently the impacted substance is dense and dry. The contents of the cells in this disease are chiefly coagulated albumen in a granular form. The second modification in the constituents of the sebaceous cells, is that which was described by my friend Mr. Dalrymple, in a paper read before the Society at the close of the last session, and published in the Society's Transactions. In Mr. Dalrymple's case the sebaceous cells were flattened, having the ordinary appearance of epithelial scales, and contained phosphate and carbonate of lime in their interior. I do not agree with Mr. Dalrymple in considering the calcareous matter in this case "a totally new substance," "found in tissues where *à priori* we should have been most unprepared to expect it;" for the sebaceous secretion always contains alkaline salts and salts of lime, and in his case the transudation of the other constituents of the sebaceous cells with the detention of the earthy salts, the latter being in excess, would give the pathological state required. It is not unlikely that the cases described by Meckel, Voigtel,* and Vogel,† were of the pathological nature described by Mr.

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* In sheep, sebaceous tumours are sometimes met with, which are completely filled with wool.

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* Handbuch der Pathologischen Anatomie.

† Algemeine Zeitung fur Chirurge innere Heilkunde. July, 1841.

Dalrymple. In Vogel's case there were one hundred and fifty small tumours, dispersed over the scrotum, and on chemical analysis they were found to be composed of carbonate and phosphate of lime, with a trace of soda, a small quantity of fat, and some extractive matter.

I now turn to another pathological state consequent on imperfect secretion of the sebaceous substance. It is that in which, from the torpid action of the skin, or from the nature of the contents of the cells, or from both causes acting together, the sebaceous substance collects within the follicle, becomes impacted, and acquires an abnormal degree of density. In this situation the impacted mass exerts so great an amount of pressure on the vascular walls of the follicle, as to abrogate its special function, and the peculiar elements of the sebaceous secretion cease to be produced. The formation of epithelium, however, still continues, and layer after layer of epithelial scales are developed, until the mass acquires considerable size. Tumours of this kind, from the nature of the position of the sebaceous follicle, namely, within the corium, rarely acquire a large size as compared with tumours in other situations. They are prevented from pressing inwards by the deep stratum of the corium; the same structure opposes their increase outwardly or laterally. Nevertheless, I have seen a tumour of this kind which measured three quarters of an inch in diameter, but not more than a quarter of an inch in thickness. The aperture of the follicle remains open, and is more or less distended in proportion to the extent of the tumour; but from the nature of the collection, there is no tendency to its escape. I have called such tumours *sebaceous accumulations*. Certain minute tumours, commonly met with in clusters around and upon the eyelids, *sebaceous miliary tubercles*, are of the same pathological nature with the sebaceous accumulations, but in these the excretory follicle is closed.

The peculiar pathological character of the tumours just described is their laminated texture, and the identity of structure of their contents with epidermis, most, if not all, of the peculiar constituents of sebaceous substance being absent. In the preparations and figures before the Society, this peculiarity of structure is shown, as are the precise seat of the tumour, and the thinness of the walls of the dilated follicle.* Mr. Dalrymple remarked, in his case, upon the concentrically laminated disposition of the contents of the little tumour.

If now, in the cases above recited, we imagine the upper wall of the laminated tumour to be removed, and the accumulated substance exposed to the influence of the atmosphere, any moisture retained by the epithelial laminæ would soon become dissipated, and the whole mass would acquire the consistence and hardness of epidermis of equal thickness; in other words, it would be converted into horn.

Such a case as that which I am now supposing does sometimes in reality occur. The aperture of the follicle acquires an unusual degree of dilatation, and some of the hardened contents of the tumour are pressed through the opening. By the addition of fresh layers from below, (the formative power having increased by the removal of superficial pressure,) the indurated mass is still further forced outwards, dilating the aperture as with a wedge, and finally increasing its size to that of the entire base of the hypertrophied follicle. The process of formation of new epithelial layers by the walls of the follicle (now become the base of the mass) will go on, unless interrupted by surgical means, for years, and in this manner those singular bodies, of which so many remarkable examples are on record, *horns*, are produced.

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* See Plate II. at the end of the volume.

A well-marked instance of *horn*, of which I shall now proceed to give an account, was shown to me by my friend Mr. Barklimore, of Charlotte-street, Bloomsbury-square, during the month of October of the present year (1843). The patient was an old female servant in that gentleman's family; she was fifty-seven years of age, and gave the following history of her case :—At the age of five-and-twenty, on the termination of a severe attack of illness, she observed a small elevation, like a pimple, on the site of the present growth; the pimple increased in size, was somewhat painful, and in about ten years from its first appearance burst, and discharged a quantity of matter resembling "mashed potatoe." From this moment a cavity always remained, from the bottom of which some " scurfy " matter could be raised by the finger nail. At the beginning of the current year, the present growth made its appearance in the situation of the cavity, and increasing in size, gave her much pain and uneasiness. The skin around it was red and inflamed, and she applied a poultice, which had the effect, according to her, of making it grow still faster. During the summer she suffered much from the frequent jerks which the growth received from her dress, and from awkward blows which it sustained, and in the month of October she applied to her master for relief. At this period the growth had acquired a considerable size : it was situated on the upper and front part of the thigh, and presented the appearance and characters of horn. It was semi-transparent, yellowish in colour, dense and horny in texture, ribbed on the surface, insensible to the pressure of the nail, and firmly rooted in the skin. In general appearance it resembled the broad and curved beak of a bird, of large size, and had a broad and extensive base. Around the base, the integument arose to the height of several lines, and in two places to fully half-an-inch. The skin was thin and attenuated as though from the effects of stretching, the epidermis being continuous with the surface of the horn, and gave the idea of a degeneration of the integument into the horny structure.

On the 12th of October, I proceeded, with the aid of Mr. Barklimore, to remove the horn, by cutting through the integument, around its base, and dissecting it from the subcutaneous tissue. The removal was speedily and easily accomplished, since the growth was limited inferiorly by the under surface of the corium. The wound made little progress during the first fortnight, and was indisposed to form granulations, a circumstance I had been prepared to anticipate from the elderly and infirm appearance of the patient, the looseness of the integument, and the inferior vascularity of the fibro-cellular and adipose tissues composing the superficial fascia; but as soon as granulations did appear, the process of cure went on rapidly, and by the fifth week the sore was entirely healed.

I have had occasion to make this remark before, in the healing of wounds in old persons after operations, namely, that the action, which is slow in being excited to commence the reparative process, is inapt to rise to a point that might interfere with its progress when once established. In the present case, although one small artery only required ligature, there was an oozing of blood all the night through; for several days the surface presented the appearance of a newly-made wound, nor was any trace of lymph perceptible until after that time. The suppurative process was very deficient during the whole period of cure.

On examining the horn after removal, I found its base to be formed by the deep stratum of the corium, so that it was obviously a cutaneous formation. The base was oval in shape, and measured in its long diameter one inch and a half, and in the opposite direction one inch and a quarter. The horn was two inches and three quarters in length, by two inches in greatest breadth, and its elevation above the surface was one inch and a quarter. The latter measurement was that of the vertical thickness of the horn; for in consequence of its mode of growth, its long diameter lay parallel with the surface of the skin. The sebaceous accumulation must originally have formed a prominent tumour, from the side of which the protrusion took place; the thin integument covering the other half still retaining its elevation from distension. Traces of this mode of formation are still apparent upon the surface of the horn. Subsequently, the thin integument has become inflamed and ulcerated, and, receiving no granulations from beneath, has desiccated upon its horny contents. This ulceration was the cause of the redness and pain of which the patient complained, and its extent is marked upon the horn, by a rough, discoloured surface of a circular figure, surrounded for more than two-thirds of its extent by a margin of thinned integument. The weight of the horn was six drachms.

The section of the growth presents all the characters of horn; it is laminated longitudinally, the laminæ being distinctly traced by their difference of tint from the base to the apex of the horn. At the apex, moreover, it is split in the direction of its laminæ, and several external lamellæ are partly separated from those beneath.

In minute structure it is composed of flattened epithelial cells, closely condensed, and in some parts having a fibrous arrangement. The epithelial scales are somewhat larger than those of the epidermis, and possess nuclei; a circumstance which confirms the analogy between the inflected follicles of the skin, and those larger inflections lined by mucous membrane. The flattened cells measured in long diameter from $\frac{1}{700}$ to $\frac{1}{300}$ of an inch; and in the short diameter from $\frac{1}{1000}$ to $\frac{1}{350}$; the average of these measurements being $\frac{1}{500}$ for the long, and $\frac{1}{650}$ for the short diameter. The nuclei are for the most part oval in shape, the long diameter measuring $\frac{1}{2500}$, and the short $\frac{1}{3300}$ of an inch. Epidermic cells, according to my observations, have an average admeasurement of $\frac{1}{600}$ by $\frac{1}{800}$; and the epithelial cells of the mouth $\frac{1}{300}$ by $\frac{1}{400}$ of an inch. The nuclei of the latter measured $\frac{1}{2000}$ of an inch. (See Plate II.)

I made no chemical analysis of the horn in the present case, but this has been done repeatedly on the continent. M. Dublanc has published an analysis of human horn in the "Journal de Pharmacie,"* and another analysis† was made of a horn which is deposited in the Dupuytren Museum. Both analyses go to show that horn is chiefly composed of albumen, a small quantity of mucus, phosphate of lime and chloride of sodium, and a trace of lactate of soda.

The subject of horns in the human person very early attracted the attention of observers, and their occurrence seems to have been more frequent among our forefathers than at the present day. This circumstance may be explained by referring to the improvement which has of late years been made in surgery, and to the more general diffusion of a knowledge of its elementary principles. Upon a recent occasion, namely, the presentation of a paper to the Royal Academy of Medicine of France, by M. Lozes, the committee appointed to inquire into this subject collected seventy-one observations of horny growths from the skin, of which, thirty-seven were met with in females, thirty-one in males, and three in infants. Of this number, fifteen were seated on the head, eight on the face, eighteen on the lower extremities, eight on the trunk, and three on the glans penis.*

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* March, 1830.

† Cruveilhier, Anatomie Pathologique, liv. 24, vol. 2; and Jour. de Méd. Prat. de Bordeaux. 1835.

In pursuing this inquiry, I have succeeded in collecting ninety cases, of which forty-four were females, and thirty-nine males; of the remainder the sex is not mentioned. Of this number, forty-eight were seated on the head, four on the face, four on the nose, eleven on the thigh, three on the leg and foot, six on the back, five on the glans penis, and nine on the trunk of the body. The greater frequency of this disorder among females than males is admitted by all authors, but this fact is most conspicuously shown in the instance of the thigh and of the head; for example, of the eleven cases of horny growth from the thigh, two only were males; and of the forty-eight affecting the head, twenty-seven occurred in females, and nineteen in males; in the remaining two, the sex being unmentioned. That old age is a predisposing cause of this affection, is proved by the greater frequency of its occurrence in elderly persons; thus, of the forty-eight cases in which the scalp was the seat of the growth, thirty-eight were above the mid-period of life; several were over seventy, and one was ninety-seven;* three were young persons,† and three were infants.‡

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* Mémoires de l'Academie Royale de Médecine. Juin 1830.

Cruveilhier, in remarking upon the relative frequency of these growths on different parts of the skin, states that they occur on the posterior and inner part of the thighs, as often as on all the other regions of the body taken together, a circumstance which he attributes to the general use of the chaufferette. But Cruveilhier's statement is not borne out by facts, and numerical data are, as we have seen above, opposed to his opinion. Moreover he confounds horns with warts and corns, and regards them as the result of cutaneous irritation and enlarged papillæ, with increased secretion of epidermis.§

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* Gastellier. Hist. de la Soc. Roy. de Méd. vol. i. p. 311. 1776.

† Aldrovandus et Bartholinus.

‡ Amatus, Cent. 1. Cur. 1. Zacutus Lusitanus, Prax. Med. Adm. lib. iii. obs. 83. Joseph Lanzoni, Nat. Cur. Ephem. Germ. ann. 4. 1673.

§ Loc. citat.

Several authors have mentioned the development of horny growths from old encysted tumours, and have remarked upon their frequent association with such tumours. Sir Everard Home* was particularly struck by this circumstance; it was present in all the cases which he examined, but he fails in accounting for the horny secretion, which he regards as an imperfect substitute for epidermis. Thomas Bartholin, who collected several cases of human horns, speaks of the origin of one from an encysted tumour,† and Soemmering,‡ Gastellier,§ and Caldani,‖ notice the same fact.

Some curious speculations were excited in the minds of the older physicians by the observation of cases of horny growths. Thus, Rhodius¶ met with a Benedictine Monk who had a pair of horns, and was addicted to rumination, and Fabricius,** having seen a man with a horn growing from his forehead, whose son ruminated, is willing to give the father the credit of transmitting this disposition to the son, by virtue of the ruminant character which he bore so obviously upon his head.

The most remarkable case of human horn on record, is that of a Mexican porter named Paul Rodriguez.* The horn was situated upon the upper and lateral part of the head, it was fourteen inches in circumference around its shaft, and it divided above this point into three branches. Voigtel† cites the case of an old woman who had a horn with three branches growing from her forehead, and M. Dubois‡ had a woman under his care, in the Hospice de Perfectionnement, with a horn that measured seven or eight inches in diameter at its base, and was six inches in length. The length of the horn in some recorded instances is also remarkable. Sir Everard Home§ saw two cases, in both of which the growth measured five inches by one inch in diameter. They were curled and had the appearance of isinglass. In one case the horn was fourteen years growing. Dr. Gregory‖ mentions a horn which was removed from the temple of a woman in Edinburgh which measured seven inches. Dr. Chariere,¶ of Barnstaple, saw one growing from the nape of a woman's neck which measured seven inches. A horn in the British Museum is said to measure eleven inches in length by two-and-a-half in circumference,** and Bartholin,†† Faget, and several other writers, have spoken of horns twelve inches long. A singular instance of horn is mentioned by Cruveilhier in his "Anatomie Pathologique," as falling under the notice of Dr. Faget of Bordeaux. The subject was a Mexican Indian, and the horn was situated in the lumbar region on the left side. After growing for three years, it had attained a length of four inches by seven or eight inches in circumference, and was sawn off by the patient's son ; after another three years it was submitted to a similar operation, and, at the end of nine or ten years from its first appearance, was extirpated by M. Faget. The portion removed by M. Faget, with the two portions previously cut off, amounted in length to about twelve inches.

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* Philosophical Transactions, vol. 81, p. 95, 1791.

† Epistolis.

‡ Archives Générales de Méd. vol. 13, 1827.

§ Loco citato.

‖ Dict. de Méd.; Art. Cornée.

¶ Bartholinus, de unicorn. aphor.

** De ventriculo. Also, Bartholinus, de unicorn. aphor.

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* New York Medical Repository for 1820.

† Handbuch citat.

‡ Dictionnaire de Médecine; Art. Cornée.

§ Loco citato.

‖ Sir E. Home's paper; loco citato.

¶ Eodem loco.

** Eodem loco.

†† Epistolis.

In a scarce tract in small quarto, published in 1676, there is "a brief narrative of a strange and wonderful old woman that had a pair of horns growing upon her head." "This strange and stupendous effect," continues the pamphlet, "began first from a soreness" of the back part of the head where the horns grew. "This soreness continued twenty years, in which time it miserably afflicted this good woman, and ripened gradually into a wen near the bigness of a large hen egg, which continued for the space of five years, more sadly tormenting her than before, after which time it was, by a strange operation of nature, changed into horns, which are in show and substance much like ram's horn, solid and wrinkled, but sadly grieving the old woman, especially upon the change of weather." The horns were shed four times, the first "grew long, but as slender as an oaten straw ;" the second was thicker, and, on the fall of the latter, two were produced, which were broken off by accident. One of these was presented to the King of France, the other is stated to have been nine inches long, and two inches in circumference. The periods of shedding were three, four, and four-years-and-a-half. There is an engraving of this woman in Dr. Charles Leigh's Natural History of Lancashire, Cheshire, and the Peak of Derbyshire. Her portrait and one of the horns is in the Ashmolean Museum, and another of the horns in the British Museum.

I have not ventured to name the numerous writers who have recorded individual cases of horn; and I shall now conclude by referring to the names of those who have devoted attention to the subject in general. Bartholinus and Borellus have each collected numerous cases. Vicq d'Azyr* treats of the subject in his essay on "Animal Concretions" in 1780; Franc,† in an essay "de Cornutis," in Heidelberg; Sir Everard Home, in the Philosophical Transactions for 1791; Alibert, in his "Précis Théorique et Pratique des Maladies de la Peau;" Rudolphi,‡ in a paper read before the Academy of Sciences of Berlin, in 1815; Dauxais, in a thesis, published in Paris in 1820; Breschet, in the article "Cornée," in the Dictionnaire de Médecine; Cruveilhier, in his "Anatomie Pathologique." The latter author devotes the whole of his twenty-fourth fasciculus to horny growths. And Sir Astley Cooper and Mr. Travers, in their Surgical Essays.§

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* Hist. de la Soc. Roy. de Méd. p. 184. 1780-81.

† Tract. Philolog. Med. de Cornutis.

‡ Vol 2.

§ Part 2.

ON

THE EARLY ORGANISATION

OF

COAGULA

AND

MIXED FIBRINOUS EFFUSIONS, UNDER CERTAIN CONDITIONS OF THE SYSTEM.

BY JOHN DALRYMPLE, ESQ.,
SURGEON TO THE LONDON OPHTHALMIC HOSPITAL.

READ MARCH 12TH, 1844.

IT has been noticed by some intelligent pathologists, that in cases of inveterate scurvy, the blood contains, relatively to its other constituents, a larger proportion of fibrin. It is well known, also, that besides the pathognomonic, spongy, and bleeding gums, large ecchymosed blotches make their appearance under the integuments, and extravasations of blood in various deeper-seated situations.

In a paper published in vol. xxiii. of the Transactions of this Society, I referred to a large coagulum, *extravasated,* as I conceived, beneath the periosteum of the tibia of a man who died of scurvy on board the Dreadnought Hospital ship, and which coagulum had been beautifully injected by Mr. Busk. I offered this specimen in proof of the rapidity of the organisation of the fibrinous materials of the blood, in certain cachectic conditions of the system. The fact of the organisation in this case rested solely upon the perfection of the injection, the absence of any extravasation of the vermilion, and the form and peculiarity of type of the new vessels.

Within the last few weeks a Lascar died of the same disease, on board the Dreadnought, in whose knee-joint were found many coagula, some adherent to the reflected synovial membrane surrounding the cartilages of the femur and tibia, and some loose in the cavity of the joint. The limb having been very successfully injected by Mr. Busk, the attached coagula were found to be permeated with new and numerous capillary vessels.

In Mr. Travers's recent and beautiful monograph upon inflammation, that gentleman expresses a doubt as to the character of the effusion in the former case referred to by me, and inclines to the belief, that the injected mass was rather a fibrinous effusion, mixed with the colouring principle of the blood, than a true extravasation, and that the injected canals were the original vessels between the periosteum and the bone, stretched and separated by the effused fibrin. Mr. Busk also conceived that the specimen consisted, in part at least, of effused fibrin, but he maintains the new formation of the injected vessels.

Not relying, therefore, in this more recent case, solely upon the fact of the clot having been injected, I proceeded to a microscopical examination of the morbid parts, before they had been altered by immersion in spirit of wine.

The coagula presented the appearance of dark but firm clots, and upon being viewed beneath the microscope, their colour was found to depend upon an infinity of red blood disks in an entire state, mingled with fibrinous globules. The firmness of the masses, however, was due to the advancing organisation of the fibrin itself, the fibrinous cells being found in all stages, from the granulated sphere to the caudated cell, ultimately developing into filamentous tissue.

There were—

1. The exudation or fibrinous corpuscules, spheroidal and granular.
2. Nucleated cells—oval with excentric nuclei and nucleoli.
3. Cells elongating in one direction and becoming caudate.
4. Cells more elongated, and the tails occasionally bifid.
5. Cells drawn out into a filamentous prolongation at either end. And,

Finally, their conversion into simple wavy filaments.

At first the cells were filled with granular matter, as well as with their large nuclei; but as they increased and became elongated, the nuclei diminished, and the granular matter was less abundant: at length the nuclei nearly disappeared, and the filaments became clear. It should be added, that all these varieties of cell development were seen in one and the same preparation, and at the same time.

It was to the interlacement of these caudate cells and filaments, that the firmness and definite outline of the coagula were due; and this description exhibits the true progressive organisation of the living germs, which *precedes*, as I believe, the formation of new vessels.

In corroboration of this last remark, I may observe the curious fact, that in the loose coagula found in this same joint, there were not only present those appearances, described by Mr. Gulliver, as due to the simple coagulation of blood out of the vessels, viz. its fibrilation intermixed with blood disks and fibrinous globules, but a distinct stage in advance, or an attempt at progressive organisation, although the coagula were loose in the joint, and unattached to any living tissue.

Even here, a few caudate cells were found, intermingled with coagulated and fibrilated blood, enough, however, to show that the law of vitality impressed upon the cell germs was in action, after all direct connection with living tissue had ceased, and when it is obvious no new vessel could have been formed within the mass. This is a point that requires extended observation, and may have some connection with the obscure subject of the production of loose cartilages, sometimes found in joints and bursal cavities.

It is a matter of much interest to determine, whether the fibrinous materials of the blood, observed in the *attached* coagula, were effused during a process analogous to chronic inflammation, the blood disks being the product of *new vessels* afterwards ruptured by the *vis-a-tergo*; or whether, during a state of engorgement from feeble systemic circulation, *the original vessels* became torn, and effused their contents.

The blood in scurvy, as already mentioned, is highly fibrinous; and if extravasated within the living body, may not the fibrin coagulate into aggregation corpuscules? or may not the *white* particles of the blood effused with the red disks undergo those organic changes which seem to be the earliest efforts at organisation?

It has been observed by M. Mandl, that "*globules fibrineux*" augment in number on the port-object of the microscope, and he considers them produced by the coagulation of the fibrin formerly dissolved in the *liquor sanguinis.* It is clear, however, that whether they be effused by a process analogous to chronic inflammation, or as a true extravasation in the first instance, the presence of the red blood disks (certainly the production of ruptured vessels) in sufficient numbers to render the fibrinous mass closely analogous to, or imitative of, a true coagulum, does not prevent the first process of cell development, and the subsequent production of new vessels within the mass.

The fungous and bleeding tumours of the gums in scurvy are organised growths, however produced, and are probably of the same type as these morbid products in the knee joint. Mechanical causes may operate to produce rupture of the gingival vessels, and the highly fibrinous blood coagulates, and rapidly becomes organised, increases, and forms the spongy granulations observed in this disease.

It is not, however, now contended, nor was it in my former paper, *that ordinary extravasations of blood in the healthy body* become organised, because the vitality of surrounding parts is higher than that of the blood so effused, and the absorbents, under such conditions, effect their ordinary changes in consequence of a tendency to disintegration, rather than to an advanced development of the effused blood.

CASE

OF

EXTIRPATION OF AN OVARIAN CYST,

TERMINATING FATALLY.

By BRANSBY B. COOPER, F.R.S.,

SURGEON TO GUY'S HOSPITAL.

READ JANUARY 9TH, 1844.

In undertaking the operation for the extirpation of an ovarian cyst, the result of which I consider it right to bring before the notice of the profession, I wish it to be understood that I did not seek the opportunity with any hasty view, either that I should, on the one hand, by a successful result, tend to establish the propriety of the operation, or on the other, by failure, be deterred from further trial; but urged by the patient herself, I thought it justifiable to comply with her request, after having made myself thoroughly acquainted with the statistical results of the operations which had already been performed. There can be no doubt, though some may estimate the risk of extensively laying open the abdomen at a much lower rate than others, that to expose the important viscera therein contained, and to subject so large a surface of a serous membrane to even the degree of increased action necessary to its future reparation, must ever render the operation one of the greatest danger; superadded to which, it is to be remembered, that the sudden removal of the great weight to which the organs have been so long subjected, must in itself much interfere with some of the most important functions of the animal economy. I duly considered, therefore, and explained to my patient, most fully, the great hazard which she, I may say, solicited—but as she persevered in her determination, and as I had the proof of the possibility, at least, if not of the probability, of her recovery, in the successful termination of three out of four operations by Mr. Walne, and of two out of four by the minor operation by Mr. West, and one by Dr. Frederick Bird, I consented, notwithstanding my conviction of the danger, to submit her to the operation, fully convinced that any means short of the removal of the cyst would prove futile. I had, however, as yet scarcely determined whether to perform the major or the minor operation; but upon a further investigation of the subject, I came to the conclusion, that the removal of the cyst, with its contents, by the larger opening through the abdominal parietes, was safer than the withdrawal of the collapsed cyst through the small aperture, which necessarily leads to a much more protracted manipulation, and consequent liability to future inflammation.

I considered it right, therefore, in justice to my patient, to consult with Mr. Walne, who had already been successful in three cases by the major operation, and from whom I received, in the most friendly manner, an account of the mode which he had adopted, both as to previous preparation, and the details in the stages of the operation; and, by his advice, requested my friend, Dr. Blundell, to examine my patient, that he might form an opinion as to the fitness of the case for the removal of the tumour, a precaution which Mr. Walne had taken in all his cases. Dr. Blundell kindly complied with my request, and reported that he could discover no good reason against the performance of the operation, for that after the most minute examination, he had reason to believe the cyst was free from adhesions, and that every circumstance connected with the condition of the abdominal cavity was favourable to the procedure.

CASE.

Sarah Stannard, æt. 32. A moderately muscular made woman, having dark hair and grey eyes, temperate in her habits, and in her general appearance healthy. The catamenia appeared at the age of 16, but abnormally, as to their duration, periods of recurrence, and quantity.

She married four years ago, but has never been pregnant.

Her attention was first drawn to the complaint, under which she now suffers, five years ago, from her friends accusing her of being pregnant; and the tumour at this time had acquired so large a size, that she could not discover from which side it had commenced. She does not recollect that one side was ever more swollen than the other. Eleven months after she noticed the swelling, she was admitted into Guy's Hospital, to have the tumour extracted, which, however, was not performed, as the operation was unsuccessful in a case at that time in the hospital. She consequently went out, and a month afterwards married, but at the expiration of six months her general health became so much impaired from the rapid accumulation of fluid, that she applied to me to perform paracentesis abdominis; but a day or two before her admission into the hospital for the purpose, having taken, by the advice of a friend, a glass of gin, she passed a gallon of urine during the night, and the increased flow continued for ten days afterwards, although in diminished quantities; so that at the end of that period no vestige could be discovered of the original tumour. Many months, however, had not elapsed before her abdomen again enlarged, and continued to do so for eighteen months, when she again passed a large quantity of urine, and the swelling was a second time dispersed, but not so completely as on the former occasion. Twenty months after this last favourable event, the tumour having acquired its original bulk, paracentesis abdominis was performed, and three gallons of a straw-coloured fluid were drawn off. She recovered from this operation without a bad symptom. Seven months ago she was again tapped, an interval of thirteen months having elapsed between the two operations. On this occasion she likewise convalesced without anything untoward having occurred; but the fluid was of a darker colour, and thicker. It does not appear that she has ever had symptoms which would induce the belief that she had suffered from peritonitis, so as to cause any adhesions.

Present symptoms.—Her general health is good, although she suffers occasionally from flatulence, and slight symptoms of nausea: her appetite is excellent; the bowels are regular, and she passes about three pints of urine in the twenty-four hours, of a natural colour, sp. gr. 1·020, slightly acid, and not coagulable by heat or nitric acid. Pulse 85, soft and full. She sleeps tolerably well, although, from the large size of the tumour, she is incapable of lying on either side for any great length of time.

The abdomen, to the right, is larger than at the full period of utero-gestation, and presents an oval form, and on passing the hand over it, an irregular mass, of the size of a saucer, is felt mid-way between the ensiform cartilage and umbilicus, composed probably of compound cells. Over every part of the abdomen there is dullness of sound on percussion; and fluctuation is more than usually distinct in every region of the abdomen. The circumference of the abdomen, just above the umbilicus, measures 3 ft. 4½ in., and the length, from the ensiform cartilage to the pubis, 1 ft. 8 in.

Dr. Blundell at this time saw the patient, and after a careful examination, gave it as his opinion that the case was a favourable one for the removal of the tumour. The operation was therefore decided upon.

Operation.—The temperature of the room having been raised to 72 degrees F., the patient was seated in a convenient chair, well supported by pillows, and an eight-tailed bandage placed behind her. An incision was made below the umbilicus, in the median line, between three and four inches in length; and the peritoneal cavity being opened to a small extent, a little ascitic fluid escaped. The finger was introduced, and passed around the opening, and a few slight adhesions broken down. An incision was now made through the integuments, commencing three inches below the ensiform cartilage, and extending to the upper part of the first incision, carefully avoiding the umbilicus; and the sub-cutaneous structures were then divided by a probe-pointed bistoury, cutting from below upwards, the finger being used as a director. The wound was also enlarged towards the pubis. Very trifling hæmorrhage ensued; and the tumour, now clearly exposed, slowly and steadily advanced, its substance being supported very carefully by Mr. Law, whilst Dr. Noyes kept the integuments in close contact with it posteriorly, in order to avoid unnecessary exposure of the intestines, or other viscera. A broad and thin pedicle, connected with the right ovary, was now fairly brought into view, and a strong needle fixed in a handle, and armed with double silk, was passed through its centre, and both ligatures being securely tied, it was divided between the ligature and cyst, and the mass removed. Dr. Cape having examined the remaining ovary, and pronounced it healthy, the wound was closed by about fifteen interrupted sutures; and strips of adhesive plaister being applied, and the roller adjusted, she was removed to bed.

The patient bore the operation with uncommon fortitude, but there being some slight attempt to vomit during the application of the sutures, half a drachm of Battley's solution, in camphor-water, was given. Pulse before the operation, 87; after removal to bed, 96.

Half-past 4 P.M.—She was troubled with flatulence just after the operation, but about 2 o'clock fell asleep, and continued so for about half an hour. She now complains of pain in the pubic region, with a desire to micturate; in consequence of which the catheter was introduced, and ℥iii of urine drawn off. Ordered—morphiæ hydrochlor. gr. ſs.

Nov. 4th, half-past 5 A.M. Thermometer 69 F.—Dozing at intervals; less flatulency; thirst rather increased; tongue clean and moist; skin perspirable; no sickness; pulse 116, soft and full; slight abdominal tenderness in the right side; countenance tranquil; urine drawn off to about ℥iv, of an orange colour. Ordered—liq. opii sedat. ♏xxv.

Nov. 5th, 5 A.M. Thermometer 70 F.—Complains of nausea, with great eructation; abdomen more tympanitic, but there is no pain in any part on pressure; skin perspirable; pulse 130, smaller and less compressible; countenance more anxious; urine drawn off to ℥ix. No complaint of tightness of the roller, which, however, it was thought advisable to loosen. As it was supposed peritonitis had supervened, fomentations were ordered, a warm gruel injection, and a pill of calomel and opium every three hours.

Nov. 6th, 5 A.M. Thermometer 69.—Another attack of eructation: skin hot, and not perspirable; pulse 126, weak; countenance rather more distressed; no abdominal tenderness; tongue clean and moist; no rigors. Catheter introduced, but little urine drawn off, having passed it herself twice.

4 P.M. Temperature of the room 69 F.—Has slept well nearly the whole time since the administration of an opiate at 11 A.M. Abdomen less tense; no motion yet; very little eructation; skin cool; pulse as before; has passed about ℥viij of urine, clear, and of an orange colour.

Nov. 7th, 4 A.M.—The pulse has continued quicker, with diminution of power; nausea, but no absolute sickness; great distress of countenance, and increased thirst; some degree of *subsultus tendinum* is now present, with general tremors; skin perspirable; moans incessantly: ordered small quantities of wine-and-water.

5 P.M.—The vomiting has returned; no abdominal pain, and less tympanitis; pulse 120, soft and full. Ordered—emplast. cantharid., scrobiculo cordis, and liq. opii sedat. ♏xxx. A glyster given

during the day has returned without fæculent matter.

Nov. 8th, 8 A.M.—Had constant sickness the early part of the morning, but has now less; the skin is perspirable; pulse 120, weak; urine passes freely, bowels slightly open. Ordered soda-water and brandy, and glysters of strong beef-tea.

7 P.M.—The wound was dressed this morning; its edges were well in apposition, and there was no irritation about the sutures. She is now suffering from general abdominal tenderness, increased on pressure, especially in the pubic region, and there is a desire to micturate; abdomen tympanitic; constant nausea; pulse 140, and small. Ordered fomentations, and a pill with calomel and opium.

Nov. 9th.—There is no amelioration; she gradually sunk during the day, and death took place at 5 A.M., on the 10th.

Description of the Tumour.—The cyst was of an oval form, and at its superior part, anteriorly, was a collection of compound cells. This was the mass felt before the operation. The weight of the cyst was 32 lbs.

Post-mortem examination, 30 hours after death:—

Abdomen.—On opening this cavity, the small intestines were seen highly distended, and wanting in their usual shining character, from the effusion of a thin layer of albuminous fluid. There were two long bands connecting the small intestines with the abdominal parietes on the right side: these appeared of old standing, probably some years. The intestines were slightly glued together by lymph of an organizable kind, and in the interspaces formed by these adhesions there was a small quantity of puriform fluid. In the right iliac fossa, the adhesion of different parts had formed a kind of cyst, which enclosed about an ounce of sanguineous fluid, probably the effusion from the divided vessels of the peduncle. In close proximity, there was a coagulum of blood about the size of a crown piece, enclosed between two layers of membrane.

The uterus was large, tumid, and of a dark colour; anteriorly, at its superior part, there was a soft fungoid tubercle, of the size of a walnut. This was examined under the microscope, by Mr. Reynolds, and pronounced to be highly malignant. A small piece of omentum, adherent to the peduncle, was enclosed in the ligature.

There was a small quantity of fluid in the abdominal cavity, which appeared of rather an organizable kind. The peritoneum covering the stomach was not inflamed.

Remarks.—From the history of this case, as well as from the *post-mortem* examination, it appears manifest that this patient died from that insidious form of peritonitis which so frequently follows lithotomy, or any serious operation which interferes with the functions of the important viscera of the abdomen.

The mere incision into the peritoneum is not, in my opinion, to be considered as the exciting cause of inflammation, so much as the return of the pedicle, with its tightly-bound ligatures, into the cavity of the abdomen, which must necessarily act as a foreign body.

The incision through the peritoneum I regard as the less dangerous, from the change this membrane must have undergone in function, if not in structure, from the long-continued pressure and weight of the ovarian tumour. It may be supposed, that in this case the implication of the small portion of the omentum, within the ligature, may have led to the peritonitis. But the proof that this was not the cause, was the absence of inflammation in the continuous omentum, as well as from the fact, that the most extensive inflammation proceeded from the broad ligament to the uterus, which was almost in a sloughing state. Besides which, the untoward symptoms did not supervene until forty hours after the operation—a very unusual circumstance when inflammation arises from constricted omentum, as sickness and vomiting commence almost immediately.

An interesting complication connected with this case was the existence of a fungoid growth in the uterus, as this involves the question which has been mooted by several of the most eminent pathologists of the present day, whether these compound cysts are, or not, malignant; and if they be, as believed by Dr. Bright, Dr. Hodgkin, and Mr. T. King, time must elapse before any correct deductions can be drawn from the cases in which it has been supposed that the operation has proved successful.

There can be no doubt but that malignant growths in other viscera frequently co-exist with ovarian cysts, and also that sometimes the small ovarian cysts themselves assume the cerebriform appearance. Another circumstance, which must always render the ultimate success of the operation doubtful, is the probable presence of a similar disease in the other ovary. On these two points I have attempted to obtain some statistical information from the records of *post-mortem* examinations at Guy's Hospital for several years past.

Of fifty cases examined, I find that eight had malignant disease in some other part of the body, and that in thirteen, both ovaries were affected, and that the left ovary was more frequently diseased than the right. It has generally been supposed that women who have never been tapped are the most favourable cases for the extirpation of the ovarium. Without denying for one instant that the constitution in such persons is in a much more favourable state for establishing a reparative process, than in those who have been tapped, still I think it becomes a very important question, whether they ought ever to be submitted to an operation so pregnant with danger, until they can no longer sustain the inconvenience arising from the weight and pressure of the accumulated fluid. The question however is different, when a patient has once submitted to the operation of paracentesis abdominis, for it will be found that a large majority of females die within four years after the operation, and that that period is passed in intervals of uneasiness and misery, from the necessity of repeated tapping.

CASE

OF THE

REMOVAL OF A DISEASED OVARIUM,

TERMINATING FATALLY ON THE SEVENTH DAY AFTER THE OPERATION.

By T. M. GREENHOW, Esq.,
SURGEON TO THE NEWCASTLE INFIRMARY AND EYE INFIRMARY

Communicated by Sir BENJAMIN C. BRODIE, Bart.

READ JANUARY 9th, 1844.

After the numerous successful cases of the removal of diseased ovaria by operation, which have lately appeared in the Medical Journals, it is not a very grateful task to record one, the issue of which has been fatal. But in the present state of our knowledge and experience of this operation it is an undoubted duty, from which I do not shrink, and I shall therefore give the details with strict fidelity, nearly *verbatim* from the notes which I made of the symptoms and treatment of the case during its progress.

I first saw the patient with Dr. Houseman about three months before the operation. She was then extremely feeble and emaciated, with the abdomen very large and tense.

In the beginning of August I made the following short history of her case nearly from her own dictation:—

Mary Nicholson, æt. 29, married. Had enjoyed good health till her marriage, two years ago—except that for about two years previously she had frequent uterine discharge, sometimes of fluid, occasionally of clotted blood, not attended with pain or abdominal enlargement. Soon after her marriage she suffered much pain at the stomach, vomiting, headache, and constant uterine discharge, often clotted. About three months after marriage a very copious or even profuse hæmorrhage took place. She cannot tell whether abortion was the cause, but there had not yet been any abdominal enlargement.

About six months after marriage she had a severe attack of pain in the loins, which lasted four hours: soon afterwards she first felt a swelling in the pubic region, which presently extended to the right side, when a moveable tumour about the size of an orange could be distinguished. The tumour from this time rapidly enlarged, and was attended with uterine discharge nearly constant, being interrupted for a day or two only, or occasionally a week.

At the end of nine months from marriage she had uterine pain, and a medical gentleman in attendance supposed her to be in labour. The pains lasted for about a week, with intervals, during which time delivery was expected to take place. After this time they gradually ceased, but she became larger; suffered much pain and difficulty in passing urine, and her strength rapidly failed her. From this time she gradually became more distended. Her strength gave way very much, and she had frequent clotted discharges. About two months ago mercury had been prescribed by one gentleman, which affected the mouth severely; and by another gentleman the abdomen was tapped; little else than blood in moderate quantity was discharged, but a poultice being applied, a daily discharge for about a fortnight, of nearly a quart of dark-coloured fluid, escaped from the orifice. The wound then healed, but she has been much less in size, and her general health has greatly improved. Since the operation no uterine discharge has taken place.

Present condition.—Strength much increased, and has no symptoms of constitutional disorder; tongue clean, appetite good, bowels regular, urine free and natural, is able to sit up three hours in the day, pulse 76, soft, occasional œdema of the legs. The abdomen is about as large as at the full period of utero-gestation; fluctuation in one or two situations; but generally the tumour is firm, and feels as if divided into two separate masses. She has no pain or tenderness in any part of abdomen, except at one point towards the right iliac region, where the original moveable swelling was first felt. No alteration in the os, or cervix uteri can be discovered, and, as far as can be ascertained by examination *per vaginam*, the organ is in a natural condition.

For two days previous to the operation she was kept quiet in bed, and desired to live entirely on beef-tea. On the morning of the day before the operation, a dose of castor oil was given, which operated well, and a gruel enema was exhibited two hours before it took place. The weather was very hot, and the temperature of the room had been brought up to 76 degrees.

September 3rd, at 11 A.M.—The operation was performed with the assistance of Mr. Heath, Mr. Frost, Dr. Embleton, Mr. Taylor, and Mr. E. H. Greenhow.

The incision reached from a little below the ensiform cartilage to near the pubis. The peritoneum was opened a little below the umbilicus, near the scar left by the trocar when she was tapped, in the expectation that at this part some adhesions would probably exist. This was the case, but they were easily separated. The incision was completed upwards and downwards with a bent bistoury through the peritoneum, directed by two fingers. Several adhesions existed in different parts of the tumour, which now became fully exposed. The principal one however was to the omentum, which was spread over the upper part of the right side of the tumour, and was closely united to it. This adhesion was divided with the bistoury, and then the tumour, with some effort from its great size and weight, was raised from its situation. Being carefully supported by Mr. Frost, while Mr. Heath closed the wound as it passed out, and retained the intestines in their place, I was enabled to pass double ligatures through the pedicle, and having firmly tied them, divided it close to the tumour, which was thus liberated from its attachments, and removed. Two arteries bled freely, one in the divided omentum and the other in the pedicle; these being carefully secured, the wound was brought together by sutures and adhesive plaister, compresses of lint and linen were placed over the abdomen, and a many-tailed bandage which had been placed under the patient in readiness, secured the whole. The operation was well borne by the patient, though she vomited towards the end several times. This however she attributed to some spirits of ammonia, and brandy-and-water, occasionally given to obviate faintness, which she says always made her vomit. The pulse remained firm, and within half an hour from being placed on the table she was again laid in bed. The quantity of blood lost did not exceed ℥vi. After being put to bed she complained much of pain and smarting of the abdomen. Mur. morph. gr.ſs. in camphor mixture was given, which induced a tendency to sleep. The pulse varied from 72 to 90. After half an hour, the pain continuing severe, the opiate was repeated. The strictest injunctions as to quietude and diet were given, the latter being confined to barley and toast water, and she was left under the care of her attendants, my pupil remaining to watch and report progress.

At 9 P.M. she remained easy, with a short interval of pain in the abdomen at about 6 o'clock, when a dose of the opiate had been given. No urine had been passed, though she felt a desire to do it. A catheter was introduced, and about ℥xii of natural urine discharged, with relief. The countenance was good, tongue clean, skin moist, pulse much quickened, 134, but soft and expansive. Has taken the fluid allowed, in small quantities from time to time. Some oozing of bloody serum has escaped beneath the lower part of the bandage. The opiate to be repeated if restless.

4th, 10 A.M.—Passed a quiet night till 6 o'clock, having had much comfortable sleep at intervals. She then complained of abdominal pain and restlessness. About ℥xii of urine, which has become somewhat turbid, was discharged spontaneously. The opiate was again given with almost immediate relief, and she has since had some calm and refreshing sleep; tongue clean but rather dry, skin comfortably warm and moist, pulse 124, soft—some thirst.

9 P.M.—Had again some abdominal uneasiness at 7 o'clock, with slight tendency to vomit. No stool since operation. Opiate to be repeated if necessary, and ol. ricini ʒii in mint-water to be taken in the morning if no stool should take place.

5th, 6 A.M.—Remained easy till half-past 12 o'clock, when pain in the abdomen took place, with vomiting, which has continued up to this time. Has passed urine twice pretty freely. She now complains of much pain and tenderness of abdomen, with tendency to vomit. Face a little flushed. Tongue clean, rather dry. More thirst—pulse 124—

some hardness—no stool.—V. S. ad ℥vi,—after which she vomited again: pulse 124, softer, ol. ricini given, but immediately rejected, after which she fell into a calm sleep. Gruel enema to be given when she awakes. In my absence an urgent message was sent at about 1 o'clock, in consequence of much pain and restlessness, with frequent vomiting, and urgent desire to pass something from the bowels. When I got there I found her complaining greatly of these symptoms. No stool, but water had been repeatedly passed. Thirst, tongue red and rather dry, pulse 120, firm—V. S. ad ℥viii, which decidedly affected the force of the pulse. A gruel enema was again thrown into the bowels, after which she became somewhat easier, but the desire to evacuate the bowels was very urgent. The pain and sickness were considerably less urgent after the bleeding, and the pulse softer, though of equal quickness. A tallow candle was introduced into the rectum as a suppository, with the hope of exciting alvine action, ten grains of ox-gall given, which soon re-excited vomiting, when the muriate of morphia was exhibited.

7 P.M.—An enema containing ol. terebinth ℥i was injected, and one drop of creosote in mint-water was given. No action of the bowels took place, and the enema was retained,—another candle suppository was passed into the rectum.

6th, 10 A.M.—Much improved in appearance. Has had occasional griping in the night, but has slept occasionally. Vomiting continues, and some of the ol. terebinth has been rejected from the stomach. No stool—has passed urine several times. Tongue moist and less red, pulse 116, soft and expansive. At 4 A.M. had a second dose of anodyne mixture, having become restless. At 6 the turpentine enema was given. Has taken only cold water in small quantities, but it has soon been vomited. Bandages were removed, but as there was no discharge from the wound, and the plaisters remained dry, they were not disturbed. Abdomen by no means tumid, and she complained very slightly of soreness. To have small quantities of weak animal broth, and an occasional effervescing draught.

3 P.M.—Has had a return of pain of abdomen for the last hour, which is very severe. Countenance somewhat flushed. No stool, still vomits everything, passes urine frequently, more thirst, tongue remains moist, pulse 120, and more resisting—V. S. ad ℥viii—considerably relieved after bleeding, pulse softer, but of the same frequency. A bag of hot bran to be applied to abdomen. Muriate of morphia $\frac{1}{3}$ of a grain, and a gruel enema, to be given at 6 o'clock.

9 P.M.—The enema had not been given in consequence of sleeping at the time of its intended exhibition. A flexible œsophagus tube was carefully passed *per rectum* to a distance of about two feet, but neither fæces nor gas escaped through it. An enema with ol. terebinth was then injected, which remained at the conclusion of the visit. It seemed however to produce a feeling of comfort, and the

vomiting was less urgent. To take calomel, gr. iv, opium gr. ii, directly, and half the quantity every four hours if pain should occur, or the first dose be vomited. To take occasionally a little effervescing medicine. To rub on lower part of abdomen, if pain should be severe, a portion of ointment of equal parts of lard and ext. belladonnæ, and at 6 A.M. to have the injection repeated, if no action of the bowels should occur.

7th, at 6 A.M.—An enema was given, and a small dose of the following mixture:—℞. Magnes. sulph. ℥i, magnes. carbon. ʒi, aquæ menthæ ℥viii, tinct. hyoscyami ℥ſs. m.

10 A.M.—Soon after my last visit, copious discharge from the bowels took place, consisting of the enema, with much fæculent matter of natural appearance in small masses; much fatigued with the necessary changes of linen, &c., but greatly relieved; free from pain, though still retching; tongue moister, pulse soft, 130, countenance improved. To have mild articles of diet, and an occasional dose of effervescing mixture.

9 P.M.—Has remained easier, but not without occasional pain. Vomiting less frequent. No stool, abdomen less tense. No oozing of fluid from wound, even where the ligature passes through. Pulse 150, more feeble, but distinct. Skin warm, and bedewed with perspiration. Countenance more sunk, but little tenderness of abdomen—opium gr. ii, immediately —if vomited, to be repeated—and if restless, gr. i to be given at the end of two hours. Small quan-

tities of chicken broth to be given occasionally. No improvement took place after the last report; the patient gradually got worse, and died at 2 A.M. on the 9th.

Post-mortem examination fifteen hours after death. —On removing the bandages and exposing the abdomen, which was much distended, the wound was found nearly healed throughout. Its length was now about seven inches, commencing about four inches from the ensiform cartilage, and terminating at nearly the same distance from the pubis. Its extremities certainly appeared much more distant from these points than at the time of the operation. Already the putrefactive odour was extremely offensive. On laying open the abdomen, the omentum presented itself, adhering to the intestines, and its folds matted together. It was of a dark bluish green colour, spotted with small portions of coagula. Its folds were easily separated. The intestines were much distended with flatus, and contained a quantity of yellowish fluid resembling fæces mixed with the fluids injected into the bowels. The smell of turpentine was discernible. General, but not very strong adhesions existed between the folds of intestine, as well as to the walls of the abdomen. On the latter could also be traced marks of the adhesions which had subsisted between them and the tumour before its removal, denoted by small masses of coagulated blood and abrasions of the peritoneal covering. The general colour of the peritoneum, both lining the parietes of the abdomen and covering the intestines, was a dusky blue, with here and there a patch of redder hue, but nowhere was there any appearance of florid vascularity. The effusion of lymph which constituted the medium of adhesion between the intestines was very inconsiderable, and a very little serous fluid (not exceeding ℥i) was found in the left side of the abdominal cavity. The coats of the intestines were for the most part pale and flaccid, and very thin; the mucous membrane especially, both in the stomach and throughout the intestines, had a blanched appearance, with the following exceptions:—At the pylorus was a distinct inflammatory blush, which extended two or three inches into the duodenum, gradually diminishing in intensity. In this situation the mucous membrane was softened, and exhibited numerous points of ulceration. Two or three patches of similar vascularity and softening showed themselves at long intervals in the course of the small intestines, but without any ulceration. Above the ileo-colic valve the increased vascularity was most distinct, and in the course of the ileum the mucous membrane was distinctly softened, and easily separable with the nail. The spleen and liver were natural, and their peritoneal covering healthy. The gall-bladder was full of bile. The kidnies were somewhat changed in appearance, their structure being unusually dense and indistinct when laid open, with a slight granular appearance. The bladder contained two or three ounces of healthy urine. On examining the pedicle to which the tumour had been attached, it proved to be the left broad ligament of the uterus; and it thus appeared that the left ovarium had been the seat of the disease, and that, after attaining a certain size, it had passed over to the opposite iliac region, the uterus at the same time making a semi-turn on its own axis, so as to place its dorsum in the anterior position. A small quantity of coagulated blood was found in the pubic region, resting on the surface of the uterus and bladder. Some portion was also found between the former organ and the rectum. The right ovarium and Fallopian tube were healthy, the left Fallopian tube was somewhat enlarged and vascular. The uterus was also healthy, but its cavity was lined with a fine vascular membrane, resembling the decidua, which gradually disappeared towards the cervix uteri.

The tumour was of an oval figure, with some irregularities on the surface. The lower portion, which had rested in the pelvis, was somewhat narrower than the rest of the tumour. The general colour resembled that of the skin, with some bluish and red patches, and the surface was smooth and polished. With the exception of one or two small cysts, containing a few ounces of yellow fluid, it was firm and solid in its character, and was the size of the uterus before delivery. Its weight was 12 lbs. 7 oz. avoirdupois. In its widest circumference it measured 2 ft. 8 in.; around the middle, 2 ft. 1 in.; and in a vertical direction, 2 ft. 2½ in.

The general structure is cellular, but in many parts it is very dense; a number of small cells or cysts, however, pervade its substance, besides the larger ones already mentioned. One of these cells, about the size of a walnut, near the centre, contained a brownish pulpy substance, resembling thickened pus. The centre of the mass, for the space of several inches, was of a bright red colour, as if an active circulation had been carried on in the interior. The largest cyst, at the upper part of the tumour, was white and glistening in its interior, resembling the ordinary character of ovarian cysts; but the dense solidity of the general mass, and vascularity of the interior, distinguish this tumour from the other instances of ovarian disease which have come under my notice.

It is very probable that, had the life of the patient been prolonged without the removal of the tumour, several of the cells might have been gradually enlarged, until they expanded into large cysts similar to those which usually characterize ovarian disease. If this supposition be correct, the cellular structure of the tumour, even in its denser parts, may be looked upon as a congeries of undeveloped or rudimentary cysts.

Remarks.

If I were required to offer an opinion as to the bearing of this case on the general question of the expediency of this operation in favourable cases, I do not think that it offers any very strong argument against it. The previous history of the patient, her very reduced condition, and the evident existence of peritoneal inflammation at a recent period, were perhaps arguments against the probability of a favourable issue. But I cannot but believe that her convalescence, after the inflammatory attack, was very nearly established, and that, but for the diseased condition of the pyloric extremity of the stomach, her recovery would have been effected. Nor does it appear probable, that the pathological state of the pylorus was other than an accidental circumstance in the history of the case, though assuredly it had a most essential influence over the result. But, after all, if the annals of this operation be truly written, and we are in possession of records of all the *unsuccessful cases* which have occurred, not less than those which have had fortunate results, the average is still largely in favour of the operation; more so indeed than in most of the great operations of surgery, notwithstanding the undeniable hazards with which it is attended.

ON THE STATE
IN WHICH THE
URIC ACID EXISTS IN THE URINE.

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In the following paper I shall mention, 1st, the opinions of Berzelius, Prout, Simon, and Becquerel.

2nd. The appearance and properties of that deposit containing uric acid, which may be obtained from urine by evaporation under the air-pump.

3rd. Appearance and properties of pure urate of ammonia.

4th. How urate of ammonia may be modified, so as to have the appearance and properties of that deposit, which may be obtained by evaporating urine.

1st. Berzelius, in the "Lehrbuch der Chemie," vol. ix. p. 417, mentions Dr. Prout's view of the uric acid existing as urate of ammonia, and then states his own, that uric acid most frequently is in an uncombined state; but perhaps modified by the presence of other matters in the urine. On this point he says, "We know moreover that iodine is more soluble in water which contains common salt, or muriate of ammonia, than it is in distilled water, although we know of no combination of these salts with iodine." Dr. Prout, in the 4th edition, p. 531, after giving Berzelius's view, states his own reasons for differing. Dr. Simon, in the "Handbuch der Medizinischen Chemie," vol. ii. p. 340, after mentioning the views of Berzelius and Prout, says, that the truth may be that healthy urine contains free uric acid and also urate of ammonia. He gives no reasons for so thinking. M. Becquerel, in the "Sémeiotique des Urines," p. 45, says, that the ordinary fine amorphous powder which is deposited from acid urine consists of uric acid combined with colouring matter and (the so-called) extractive matters of the urine.

2nd. Appearance and properties of that deposit containing uric acid which may be obtained from urine by evaporation under the air-pump.

When examined with a microscope of a moderate power, this deposit is seen always in the form of a most minute globular powder. As the particles are smaller in diameter than the hair of the micrometer eyepiece they cannot be measured. The particles exhibit rapid molecular motions. No crystalline appearance whatever can be detected. The powder is soluble in warm water, and is again deposited on cooling, of the same form as before. Any acid gradually changes the minute globules into angular crystals, which are considerably larger than the granules. The smallest of these crystals which I have measured was $\frac{1}{9000}$ of an inch in length. Their breadth is from a third to half their length.

Some deposit obtained from healthy urine by evaporation under the air-pump was washed with alcohol. It was then dried and dissolved in boiling water. After standing ten hours no deposit took place, so that the fluid might not have been saturated.

Bottle full at 64 Fahr. = 64·836 grammes.

Evaporated to dryness in a water-bath.

Residue + Bason . = 30·688 grammes.
Bason . . . = 30·640

Residue . . . = ·048
Hence water . . = 64·788

Hence one part of the residue would remain dissolved in at most 1349 parts of water at 64 F.

Some urine which gave a deposit on standing twelve hours was filtered.

Bottle full at 64 F. = 66·767.

Hydrochloric acid was added in great excess, and after forty-eight hours the clear liquor was poured off; the crystals were thrown on a filter and washed with acidulated water.

The uric acid = ·026 grammes.

Hence one part of uric acid remained in at most 2567 parts of urine after it had been allowed to stand twelve hours to deposit sediment.

Healthy urine of sp. gr. 1027 gave no deposit on standing in the air twenty-four hours, whilst some placed under the air-pump, and evaporated for twelve hours, gave a plentiful precipitate. When filtered, bottle full at 68 F. = 66·959: strong hydrochloric acid was added in excess, and it was left at rest forty-eight hours. Uric acid = ·024. Hence one part of uric acid remained in at most 2789 of urine after it had been concentrated by evaporation *in vacuo*, over sulphuric acid.

Lecanu says, one part of uric acid exists in between 780 and 1030 water.

Becquerel says, one uric acid to between 2000 and 3333 water.

3rd. Appearance and properties of pure urate of ammonia.

When pure uric acid is boiled with strong liquor ammoniæ, sp. gr. 0·884, a compound forms, which if dissolved in boiling distilled water, and filtered whilst hot, gives a copious white precipitate on cooling. Examined by the microscope this is seen to consist of small needles which form tufts and crosses. The slower the deposit, usually the larger the crystals, but I never obtained them large enough to be seen by the naked eye, though it requires only a low power to detect the crystalline structure.

The ammoniacal mother liquor, from which some urate of ammonia had crystallised, after standing many hours was filtered.

Bottle full at 65 F. = 64·924 grammes.

Evaporated to dryness in a water-bath :—

Urate of ammonia = ·058
Hence water . = 64·866

or one part of urate of ammonia required 1118 of this dilute ammoniacal water to hold it dissolved.

The needles which were deposited from this mother liquor as it cooled, were dried *in vacuo* over sulphuric acid: when perfectly dry, they were re-dissolved in hot distilled water, and the solution was distinctly acid to test-paper, when it dried upon it.

To render the acid reaction of urate of ammonia as certain as possible, some serpent's urine was powdered, boiled with water, and filtered whilst hot. The solution when dry reddened blue litmus-paper. It deposited on cooling, a multitude of small and large globules; these gradually formed a crust at the bottom of the vessel in which the deposit took place. Some of this was boiled with liq. ammoniæ fort., of which fresh quantities were added from time to time. It was then left at rest many hours; fresh ammonia was again poured on, and it was again boiled. Distilled water then was added, and the whole boiled and filtered whilst hot: on cooling, numbers of little tufts of needles were seen with the microscope, and no globules. These tufts were evaporated to dryness under the air-pump; dissolved again in boiling distilled water, and tested with litmus-paper, which was reddened as it dried about as strongly as by healthy urine.*

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* This acid reaction on test-paper as the fluid dried, was thought to indicate that a minute quantity of free ammonia was present, which hindered the acid reaction of the salt until the ammonia escaped. Later experiments have proved that not only

As the mode of preparation shows, pure urate of ammonia is much more soluble in hot than in cold water. When quite dry, some of the needles were dissolved in boiling distilled water; the solution was set aside to deposit the excess of urate of ammonia. After twelve hours, the clear fluid was filtered.

Bottle full at 69 F. = 64·720 grammes.
Evaporated to dryness in water-bath:—
Residue of urate of ammonia = ·072
Water . . . . = 64·648

Hence one part of urate of ammonia remains in 897 parts of water at 69 F.

Some needles were dissolved as before, and left to deposit urate of ammonia twelve hours.

Bottle full of clear solution at 67 F. = 64·854
Residue = ·064 Water = 64·790

Hence one part of urate of ammonia remains in 1012 water, at 67 F.

Needles prepared at another time were treated as in the last experiment.

Bottle full at 69 F. . . . = 64·824
Residue = ·065 Water = 64·759

Hence one part of urate of ammonia required 996 parts of water at 69 F. for solution.

By lengthened exposure to heat even below 212°, the needles of urate of ammonia are decomposed; thus in the residue or evaporation in the above ex-

urate of ammonia, but all salts of ammonia are decomposed by evaporation at ordinary temperatures. These experiments will be read to the Chemical Society at their next meeting.

periments a change took place, although in all cases the sides of the bason were prevented by cork from touching the water-bath; still, after about four hours, which were required before the water was evaporated, the residue was found to be not so soluble as it had been, and when dissolved and left to deposit crystals, the microscope detected crystals of uric acid.

To avoid the decomposition, a solution of needles, prepared as before, was evaporated under the air-pump, over sulphuric acid.

Bottle full at 59 F. = 62·205.
Residue of urate of ammonia = ·061
Water . . . . = 62·144

or one part of urate of ammonia required 1018 parts of water at 59 F. to dissolve it.

If to a solution of these needles, which is just so strong that it gives no precipitate on standing twenty-four hours, the smallest quantity of most dilute liquor ammoniæ, or small quantities of muriate, sulphate or acetate of ammonia, are added, a deposit in a very few minutes falls. The precipitate with the two last re-agents is changed in form, no needles are seen, only globules. Sulphate of soda and sulphate of magnesia gave no precipitate when added in small quantity to the solution of needles.

On the addition of any acid, the needles may be observed under the microscope to undergo a change: this is not instantaneous. Usually, rectangular plates form singly or in groups. It is rarely that angular crystals, similar to those in urine, are found.

In order to admit of comparison with the experiments on the urine, some needles were dissolved in water at a boiling temperature. After standing twelve hours the solution was filtered.

Bottle full at 72½ F. = 64·712 grammes.

Hydrochloric acid was added in excess, and left at rest forty-eight hours. The crystals of uric acid washed and dried = ·029. By washing, some of the uric acid was dissolved, so that there was one part of uric acid in at most 2231 parts of the solution.

In a second experiment,

Bottle nearly full at 71 F. = 61·801.

Treated as before, uric acid = ·026, or 1 uric acid in at most 2399 parts of solution.

The correspondence between these experiments and the similar ones on the urine is to be noted. The loss of uric acid in all, from washing the precipitate, though it makes the experiments of little value as regards the actual quantity present, yet it does not affect the comparative results. The error being common to all.

The next object was to determine the composition of these needles:—some very carefully-prepared needles were dried under the air-pump, and very gently warmed in a water-bath; of these ·397 grammes were taken, mixed with moderately dilute hydrochloric acid, allowed to stand forty-eight hours, then thrown on a filter and slightly washed.

Uric acid = ·368.

The clear acid fluid was mixed with a solution of ammonio-chloride of platinum in excess, evaporated to dryness in a water-bath, thrown on a filter, washed with a mixture of æther and alcohol, dried, and weighed:

Ammon.-chloride of platinum = ·487
Hence ammonia = ·037

And in 100 parts of needles of urate of ammonia we have, uric acid = 87·65, ammonia = 9·32. In this analysis I thought the whole of the urate of ammonia was not decomposed. In the following one made with needles prepared at another time, stronger acid was used:

Substance = ·457, uric acid = ·398
Ammonio-chloride of platinum = ·557

Hence in 100 parts,

Uric Acid = 87·09, ammonia = 9·29.

Another analysis was made with needles dried only over sulphuric acid:

Substance = ·353.

This was put into a flask with distilled water, and heated to near the boiling point: hydrochloric acid was then added in large excess. After forty-eight hours, uric acid = ·305, chlor. amm. plat. = ·422. Hence, in 100 parts,

Uric Acid = 86·40, ammonia = 9·12.

In the three analyses, then, we have in 100 parts of substance:—

	1st.	2nd.	3rd.	Theory.	
Uric Acid	87·65	87·09	86·40	86·58	1 equivalent uric acid.
Ammonia	9·32	9·29	9·12	8·77	1 equivalent ammonia.
Loss	3·03	3·62	4·48	4·68	1 equivalent water.

From these analyses the needles consist of one equivalent of uric acid combined with one equivalent of the oxide of ammonium.

It was thought that another urate of ammonia might be formed, containing more uric acid. Such a compound has been called superlithate of ammonia by Coindet. In various ways I tried to obtain this substance. Some uric acid was boiled with very little ammonia, so that the solution whilst boiling was acid to test-paper. This was filtered when hot. It deposited, on cooling gradually, a white curdy mass, which, under the microscope, consisted of short thick needles, mixed with long rectangular crystals of uric acid.

By mixing urate of potash with muriate of ammonia in solution, I still found a deposit of needles. The only way I thought I obtained a different substance was by heating the needles for some hours about 212 degrees, so that partial decomposition took place; boiling water was then poured on, and filtered whilst hot: no deposit fell on cooling, in one experiment not for forty-eight hours. At the end of this time, when shaken, a deposit of globules, and globules with projecting angular crystals, was seen, mixed with crystals of uric acid; after standing some hours, the mother liquor was separated by filtration.

Bottle full of clear liquid at 64 F. = 64·801.
Evaporated in water-bath:—

Residue = ·061 Water = 64·740.

Hence, one part of the residue required 1060 parts of water, at 64 F., to retain it in solution.

This solubility agrees so nearly with that of the needles, as to make it probable that no new compound was in solution. I could not obtain it free from uric acid, so as to admit of analysis.

Failing to obtain another urate of ammonia, I tried if the needles could be modified, so as to have the appearance of the ordinary urinary sediment.

4th. Some long needles of urate of ammonia were boiled with some healthy acid urine. The needles were dissolved, and, whilst hot, the solution was filtered; on cooling, no trace of needles could be seen, but the usual small granules only were visible, precisely similar to those that are seen in the ordinary deposit from urine. When cold, the clear urine was poured off from the sediment, and again boiled with a fresh quantity of needles: the same granular deposit again ensued on cooling. The clear fluid again poured off, and, boiled with fresh needles, again gave granules. Some of the same needles were boiled with water, a deposit took place on cooling, which consisted of needles; these were again dissolved, and so little urine added, that the deposit on cooling was quite colourless. When examined with the microscope it consisted no more of needles, but of granules. Some of the needles were dissolved in hot water, and some pure urea was added, still the deposit on cooling consisted of needles.

In the attempt to form another urate of ammonia, excess of uric acid was added, and still needles were deposited. As then neither urea nor uric acid altered the form of the crystals, I tried common salt.

Some long needles of urate of ammonia were dissolved in boiling water, and a thickish white precipitate of needles occurred on cooling. These were again heated, and a little common salt added to the solution. No deposit took place on cooling, or in twenty-four hours. More needles were boiled with the saline fluid, and still no deposit took place on cooling. Some of the liquid was poured on a plate of glass, and, on spontaneous evaporation, granules were observed precisely similar to those in the ordinary urinary deposit. Some more of the liquid was evaporated over sulphuric acid *in vacuo*, and a deposit took place which consisted of granules only.

A large excess of needles was boiled with distilled water, and filtered whilst hot, a little salt was added, and after some hours largish globules were deposited, and no needles.

Some of the needles, prepared as before, were dissolved in distilled water: the solution was filtered, and gave a plentiful deposit of needles on cooling. These were re-dissolved, and the solution divided into three portions. To one a few drops of healthy urine was added, to another a small quantity of salt, to the third some pure urea. In this last a deposit fell on cooling, which, under the microscope, consisted of needles, and in quite as large quantity as before. In the other portions the deposit was very much smaller in quantity. It was in both cases white, and consisted only of granules. Moreover, by boiling some urine, which contained the ordinary globular deposit soluble by heat, with ammonia, and filtering whilst hot, the deposit on cooling consisted of thickish needles and crosses. The same thing happened when urate of ammonia, salt, distilled water, and excess of ammonia were used. Here then seemed to be a satisfactory explanation of the difference which exists in the appearance, under the microscope, of the ordinary deposit, and of pure urate of ammonia. The salt seemed to be the cause of the difference.

It remains to be shown how far the same cause can account for the different quantities of uric acid which have been found in urine and in pure water. The greatest quantity in urine is, one part uric acid to 780 urine, according to Lecanu.

The greatest solubility of the needles which I observed was 1 needles to 897 pure water. Hence urine sometimes contains even more uric acid than would remain in a solution of urate of ammonia in distilled water after it has been left to crystallize.

Some needles were dissolved with some salt in boiling water: after standing twelve hours for crystallization, the mother liquor was filtered.

Bottle full at 71 F. = 64·909 grammes.

Evaporated in a water bath :—

Salt + urate of amm. = ·301 Water = 64·608

The salt and urate of ammonia were heated to redness in a covered platinum crucible.

Salt . . . . = ·162

Hence urate of ammonia = ·139

Or one part of urate of ammonia with rather more than one part of salt, require 466 parts of water at 71 F. to hold it dissolved after crystals have been deposited.

In the above analysis the salt is to the water as 2·50 to 1000. In the analysis of the urine of three grown-up men, Lecanu found in 1000 parts of urine 4·60, 2·40, 3·76 common salt.

The above experiment was then made with more salt and with less.

Bottle full at 67 F. = 64·125.

Salt + urate amm. = ·382 Water = 63·743

Salt = ·246 Hence urate of amm. = ·136

Or one part of urate of ammonia with nearly two parts of salt, require 468 parts of water at 67 F. The salt is to the water as 3·86 to 1000.

Bottle full at 68 F. = 64·862.

Salt + urate of amm. = ·159 Water = 64·703

Salt = ·067 Urate of amm. = ·092

Or one part of urate of ammonia with two-thirds of one part of salt, require 703 parts of water at 68 F. The salt is to the water as 1·03 to 1000.

If a great excess of salt was used, the urate of ammonia appeared not to be more soluble than in pure water.

These and the previous results may be compared in the following Table; the experiments having all been made on hot saturated solutions, which were allowed to stand many hours to deposit crystals.

In ammoniacal mother liq. at	65 F., there was	1 pt. urate of amm. to	1118 water.
In pure distilled water	67 F.,	1	1012
	59 F.,	1	1018
	69 F.,	1	897
	69 F.,	1	996
Distilled water with little salt	68 F.,	1	703
with more salt	71 F.,	1	465
and more salt	67 F.,	1	468

From these experiments it appears, that urate of ammonia, when dissolved with about an equal weight of salt, acquires a greater degree of solubility in water, and a difference in appearance from pure urate of ammonia. The appearance is identical with that deposit which can be obtained from urine, and the solubility is more than double the solubility in distilled water.

To render the conclusion still more certain, some pure uric acid was boiled with distilled water: in ten hours it was filtered.

Bottle full at 68 F. = 62·597 grammes.

Evaporated to dryness in water-bath:—

Uric Acid = ·007 Water = 62·590

Or one part of uric acid remained in 8941 parts of water at 68 F.

Pure uric acid was boiled with salt and distilled water: in ten hours it was filtered.

Bottle full at 64 F. = 64·974.

Salt and uric acid = ·177 Salt = ·168

Hence, Uric acid = ·009 Water = 64·797

Or one part of uric acid, with salt, remained in

7199 parts of water, at 64 F. The quantity of salt was nearly the same as had been found to dissolve most urate of ammonia. The salt being to the water as 2·59 to 1000.

Hence,

1	part of uric acid remains in	8941 parts of water	at 68 F.
1		7199	64 F. with salt added.
1	was found in	2231 pts. of solution	at 71½ F. when urate of ammonia was decomposed.
1		2399	71 F.
1		2567 parts of urine	at 64 F.

Whilst,

1	part of urate of ammonia was found in	1000 parts of water	at 65 F.
1		450	with salt added.

Now,

Berzelius gives	1 part of uric acid in	1000 parts of urine.
Lehmann	1	917 to 980
Lecanu	1	780 to 1030
Becquerel	1	2000 to 3333 urine

This was Dr. Prout's first reason for believing that urate of ammonia exists in the urine. The results I have given tend only to establish his opinion, by showing how urate of ammonia is modified in form and solubility.

The higher solubility which Dr. Prout gives to urate of ammonia possibly arises from the solution not being left to deposit crystals. In the above experiments, if no deposit took place in twelve hours, a fresh quantity of urate of ammonia was added, and the solution was set aside to crystallize. In some of these solutions, and also not unfrequently in urine, I have observed that when cooled even below 60 degrees, no deposit took place;

but if left a few hours, in even a little higher temperature, or when agitated, a large deposit fell.

The experiments which I have made may give a further insight into the various causes of that frequent deposit of urate of ammonia which occurs in health.

A small quantity of salt increases the solubility of this substance; the muriate, the sulphate, and the acetate of ammonia, lessen the dissolving power of distilled water. The red deposit from urine was diluted and heated until a clear solution was formed. It was filtered whilst hot, and divided into two portions; to one a little muriate of ammonia was added, and the temperature of both was taken as soon as a cloud began to appear in either.

Tube with muriate of ammonia.		Without muriate of ammonia.	
97 F.	cloud appeared	95 F.	clear
93	very thick	91	clear
88	very thick	86	cloud
86	very thick	84	thick

In a second experiment, with a rather stronger solution of urate of ammonia:

103	very thick	98	clear

It is most probable, that each salt that occurs in the urine has some effect on the solubility of the urate of ammonia; and it may be by a very extended inquiry into the relative re-action of the different salts, more particularly the phosphates and sulphates, that we may arrive at an accurate knowledge of the causes of the frequent deposit of urate of ammonia in the urine.

CASE OF
EXTENSIVE
CARCINOMA OF THE LUNGS,
WITH SOME PRACTICAL REMARKS.

By GEORGE BURROWS, M.D.,
PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

READ FEBRUARY 13TH, 1844.

It is well known that carcinoma is found infesting the lungs under two very different conditions. It may occur as a primary disease of the parts within the chest, commencing in the anterior or posterior mediastinum, or in the substance of the lungs; and it may appear only as a secondary affection in the lungs, the seat of primary development being in some viscus, or part of the body situate external to the chest. The extent to which the lungs are implicated in this second class of cases, is comparatively slight; the carcinoma is deposited in the substance or upon the pleural surface of the lungs, causing little or no change in the contiguous parts, and not giving rise to any pulmonary symptoms of importance.

The rarity of primary cancerous affections of the lungs, the serious symptoms which occur during their progress, and the difficulties of their diagnosis, appear to me sufficient reasons for making known any facts which may enlarge our knowledge of such formidable diseases. I am more strongly incited so to do, by the following judicious remarks of Dr. Graves,* prefixed to the narrative of a nearly similar case to that which I am about to detail. Dr. Graves suggests, that rare diseases should not be looked upon as mere matters of curiosity, but should be attentively studied with the view of enabling us to recognize the true nature of similar cases, when they occur again. If the history of diseases, at present reputed to be extremely uncommon, were published by all those who meet with them, facts, now apparently single and insulated, would serve as nuclei round which, future experience and observation might cluster together similar facts in groups sufficiently numerous to illustrate and explain each other.

In the spirit of the foregoing remarks, and convinced by experience of the mischief which sometimes results to patients from the treatment of malignant formations in the chest, when they are mistaken for ordinary diseases of the respiratory organs, I am induced to bring before the notice of the Fellows of the Royal Medico-Chirurgical Society the following case of extensive carcinoma of the lungs.

Charlotte Bain, aged 20 years, was admitted under my care into St. Bartholomew's Hospital on the

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* Clinical Medicine, p. 792.

22nd April 1843. She stated that she was married, and had enjoyed good health until six months ago, when she first suffered from pain beneath the sternum, loss of appetite, and cough, with some expectoration. She was delivered of her first child after a protracted labour, three months ago. She regained her strength, but dyspnœa, cough and swelling of the cervical glands came on, and these symptoms were soon followed by want of sleep, emaciation and perspirations. A month previous to her admission, she was attacked with hæmoptysis: the sputa at first consisted of mucus streaked with blood and clots of blood, but latterly they had become more uniformly bloody, and of a peculiar pink colour. She had continued to suckle her child, which was healthy, until the present time.

Upon her admission into the hospital her condition was as follows:—The face pallid, rather full and œdematous, with a dark areola around the eyes; the lips rather livid; the alæ nasi acting violently with each inspiration: respirations 40 in a minute; the pulse 132, rather small, bounding, but soft, and increased to 160 when she assumed the sitting posture in bed; the decubitus on the back, but inclining to the right side.

She complains of weakness, pain between the shoulders, and gnawing pain in the epigastrium; also of shortness of breath, and of frequent prolonged paroxysms of ineffectual cough, which are followed by urgent dyspnœa amounting to panting; the sputa are scanty, glairy, intimately blended with blood, and of a uniform pink colour, resembling currant-juice; the glandulæ concatenatæ on the right side of the neck are swollen, hard and tender, with some distended veins passing over them. The glands on the left side of the neck are also slightly enlarged, and the left external jugular vein distended. The tongue clean and moist, the abdomen full, soft and rather tender on pressure in the umbilical region; the bowels open twice daily; the catamenia had not appeared since parturition.

Upon auscultation, a clear exaggerated respiratory murmur, and upon percussion increased resonance, were audible all over the left lung. On the right side of the chest, on percussion, there was a diminished resonance in the upper part, while below the third rib, in front, and beneath the spine of the scapula, there was complete dullness, and this extended quite down to the right hypochondrium. A feeble respiratory murmur was audible in the upper part of the right lung: the expiration being prolonged and accompanied by a modification of sibilus resembling a chirp. A feeble respiratory murmur of a similar character was audible to some extent along the right side of the spinal column, and bronchial or tubular breathing with chirping sounds could be heard beneath the mamma, and in the lower axillary region. The voice was so weak and husky, that no vocal sounds nor vibrations could be detected. The heart's sounds were natural, and not transmitted beyond the præcordial region.

Such was this woman's condition upon her admission, and the diagnosis formed at the time was, that she suffered from extensive malignant disease of the right lung, and the clinical clerks were directed to watch her with more than ordinary care. She was allowed a nutritious diet of beef-tea, eggs and port wine, and occasional doses of the acetate of morphia with gentle aperients were also prescribed.

It may be fairly inquired, upon what grounds this diagnosis of malignant disease of the right lung was founded, and I must here confess that while this case was under my observation (April 1843) I had not had the advantage of perusing an able article on cancer of the lung in the British and Foreign Medical Review, published in that same month, nor the very instructive chapter on this subject in Dr. Walshe's work on Disease of the Lungs,* otherwise many omissions in the history of the foregoing case would have been supplied.

The general and local symptoms clearly indicated some serious disease of the lungs. The physical signs proved that the left lung was performing its functions in excess, and that those of the right lung were seriously impaired. The auscultation and percussion also informed us that the air only entered the right lung to a very limited extent, and did not pass beyond the bronchial tubes. These signs might be accounted for upon the supposition of extensive consolidation of the lung, or of pleuritic effusion causing compression of the lung.

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* London, 1843.

The extreme dullness on percussion, the absence of all vocal phenomena, and the constant decubitus on the right side, seemed to support the supposition of pleuritic effusion. But opposed to this conclusion were the presence of bronchial respiratory murmur in the axilla and hypochondrium, where the dullness on percussion was greatest, and the absence of ægophony and of loud bronchial breathing and bronchophony along the right of the spinal column. There were also present, physical signs, which when taken together were inconsistent with consolidation of the right lung, viz., the extreme dullness on percussion, the very feeble bronchial respiratory murmur, the absence of bronchophony or vocal vibrations, and the want of transmission of the heart's sounds to the right of the sternum. Hence the diagnosis of some anomalous disease of the right lung was formed; and when the peculiar aspect of the woman, the distressing dyspnœa and cough, with the singular currant-juice sputa, the enlarged cervical glands, and the history of the case, unlike that of pneumonia or pleurisy, were all duly considered, the opinion was hazarded that she was suffering from malignant formations in the right lung.

About five or six days after her admission, the glands on the right side of the neck rapidly increased in size, occasioning pain and additional distress to her breathing by their pressure on the trachea; the face became more œdematous; the right arm and mamma very anasarcous, and at the same time some enlarged and painful glands were discovered in the right axilla. The hurried respiration, dyspnœa, frequent pulse, cough, and bloody sputa, remaining unaltered.

Some leeches and fomentations applied to the swollen and painful glands in the neck afforded some relief, and rest was obtained by repeated doses of morphia. At this period the patient was examined by some medical friends, who inclined to the opinion that the disease was chronic pleurisy, terminating by copious effusion. This opinion was supported by the symptoms already detailed, especially by the posture of the woman on her right side, by the extensive dullness on percussion, and by the results of a measurement of the chest. The girth of the thorax beneath the mamma was 32½ inches, and it was found that the right side exceeded the left by 1½ inch.

Her distress was so great from urgent dyspnœa and restricted posture, that it became necessary to consider the propriety of paracentesis thoracis, if her symptoms really arose from pleuritic effusion. From the enlargement of the right side, and the increasing œdema of the face, right arm and mamma, I considered it highly probable that a passive serous effusion had taken place into the right pleura, but the existence of a coarse bronchial respiratory murmur in the lower axilla, and along the right side of the spine, quite down to the base of the lung, assured me that the lung had not collapsed, but was in contact with these parts of the walls of the thorax. No attempt was therefore made to give relief by the operation. During the remainder of her life no material change occurred in the symptoms, and she sank on the fifteenth day after her admission into the hospital.

The body was examined nine hours after death. The surface of the corpse was remarkably pallid, and the limbs rather rigid: the face, chest, breasts, right arm and vulva very œdematous: the left arm and lower extremities emaciated. The right side of the chest was manifestly larger than the left. Upon removing the sternum, the pericardium appeared rather more to the left of the mesial line than normal: it contained about ℥iv of limpid serum; the heart slightly contracted, healthy in structure, containing some coagula in its cavities. The left pleura and lung presented nothing remarkable.

The right pleura was distended by Oiv of an olive brown coloured serum. In spite of this large collection of fluid, the right lung had not collapsed, but stood out firm and prominent into the pleural cavity. The upper lobe of the lung was not much altered: its substance was tough and crepitating on pressure, the middle and lower lobes when handled felt solid. A white lobulated tumour of a dull white colour, something like a mass of suet, projected from the middle lobe of the lung; it was somewhat yielding on pressure, and in close apposition with the right side of the pericardium. Towards the root of this lung was another similar tumour, which forced the lung upwards from the spinal column. The middle lobe was intimately connected with these tumours, and much resembled them in external appearance. The pleura covering the lower lobe was rough and dark-coloured, with enlarged, congested, varicose blood-vessels, ramifying on the surface.

When sections of the middle lobe and tumours were made, they appeared one continuous mass of carcinoma. Their substance was mostly of an uniform dull white colour, and rather soft; in some parts the substance was pinkish or red, as if vascular, and in other points, especially in the situation of the bronchial glands, the cut surfaces were streaked with black lines and spots, and divided into oval segments. The surfaces yielded on compression a white creamy fluid in considerable quantity.

The superficial parts of the lower lobe to a depth varying from ½ inch to 2 inches were converted into a dark brownish friable substance, minutely studded with white spots and streaks and patches of an uniform white matter. Some bronchial tubes in different parts of this lobe when cut across, were found distended with thick yellow tenacious pus, giving the appearance of small abscesses. The right bronchus at its entrance into the lung was compressed, and much obstructed by portions of the tumour having protruded into its cavity: these projections had broad bases, and were apparently uncovered by the bronchial mucous membrane.

The right pulmonary veins were also compressed by the tumours, and at a short distance from the heart, one of them was nearly filled by four or five white, shining, softish, pyriform masses hanging towards the auricle by long slender pedicles attached to the lining of the vein: beyond these the vein entered the masses of carcinoma, and was so contracted that it would just admit a probe. The upper part of the anterior mediastinum was occupied by a tumour, having similar characters to those found in the right side of the chest. The enlarged cervical glands on the right side presented similar appearances. The right carotid artery and internal jugular vein were reduced to less than half their usual size. Many other veins in the vicinity of the tumours were compressed, and some contained coagula. The mammary glands were large, firm, and yielded on incision and compression, a white fluid like milk.

The peritonæum contained a small quantity of fluid; the liver was considerably depressed by the descent of the diaphragm. The stomach, intestines, mesenteric glands, liver, spleen, kidneys, uterus and ovaries were examined, but nothing of importance was detected in those parts.

As these cases of extensive carcinoma in the lung undoubtedly present a train of symptoms having many analogies with those of hepatisation of the lung, or of copious pleuritic effusion, and as some of these cases have been treated with blood-letting, some by mercurials and blisters, and others by the operation of "paracentesis thoracis," it may be worth while to advert to the principles on which the diagnosis of carcinomatous infiltration of the lung is to be formed.

There is scarcely any disease of the respiratory organs, of which our knowledge has advanced more rapidly than that of carcinoma of the lungs. Laennec, in his celebrated Treatise on Auscultation, (2nd Edition, Paris, 1826) gave a very detailed and complete description of the anatomical characters of encephaloid tumours in the lungs, but he did not venture to form a diagnosis of their presence in the lungs by the aid of auscultation. He merely states, "the stethoscope ought to inform us of the existence of encephaloid tumours in the lungs, when they form large masses, which is usual in this kind of new formation."

Andral, in the "Clinique Médicale," (vol. ii., Paris, 1833,) has detailed cases of encephaloid tumours in the lungs, but has not attempted the diagnosis of their existence. He remarks, "That in such cases, there usually exist similar formations in other organs of the body, and no characteristic symptoms have made known the presence of these morbid growths in the lungs during the life of the patient."

In 1833, the late Dr. Sims contributed a valuable paper to volume xviii. of the Transactions of this Society, "On malignant tumours connected with the heart and lungs." The details of two cases, and the observations appended to them, certainly called attention to this rare affection, and improved our knowledge on this subject.

The important work of Dr. Stokes, on Diseases of the Chest, published in 1837, still further advanced our knowledge; but even at this period, that eminent physician candidly confessed, "That neither in cancerous transformation of the lung, nor the mediastinal tumour, could we apply any direct diagnosis; and that in a case seen for the first time, and in which no external cancer existed, there were no means by which we could determine the point." In 1842, Dr. Stokes published in vol. xxi. of the Dublin Medical Journal, an elaborate article on the Pathology and Diagnosis of Cancer of the Lung and Mediastinum. He has there given an analysis of all the most important published cases of this affection, as well as the details of some others, which had fallen under his own observation, and to this memoir Dr. Stokes has added very ample rules, upon which the diagnosis of malignant formations should be founded.

Lastly, no one has treated this subject with more ability and completeness than Dr. Walshe, in his work "On the Physical Diagnosis of Diseases of the Lungs"—London, 1843.

I shall now proceed to compare the general symptoms and physical signs manifested in the progress of the foregoing case, with those which are described by the best authorities as belonging to carcinoma of the lungs. Dr. Walshe has enumerated certain external appearances as indicative of the presence of malignant structures in the lungs, and which were very manifest in the foregoing case. These are, (1.) prominence of the eye-balls, which, with a swollen or bloated state of the face and throat, gives the patient the appearance, to a certain extent, of a strangled person. (2.) Œdema of the affected side, corresponding arm and face. (3.) Enlargement and extreme congestion of the cervical and thoracic veins. (4.) Dysphagia. (5.) The existence of tumours upon the surface of the body. The peculiar characters of the sputa in these cases have been forcibly delineated by Dr. Stokes and Dr. Hughes, and described " as consisting of blood so thoroughly incorporated with serous fluid as to resemble red or black currant jelly." The mucus expectorated by this woman presented similar appearances, and was rightly compared to red currant juice. In many of the recorded cases of carcinomatous disease of the lungs, we find it reported that hæmoptysis to a considerable extent had occurred at an early stage. This symptom is likely to mislead, from the universally-received opinion that it is usually the harbinger of incipient tubercles in the lungs, but in truth this hæmorrhage occurring upon the appearance of carcinoma in the lungs is only in accordance with what we remark when the same malignant disease attacks the stomach, uterus or rectum. The inspection and measurement of the chest are said greatly to assist in forming a diagnosis between genuine cancerous infiltration of the lung, and the existence of tuberous masses of cancer in the lung and pleura. In the former, it is maintained that a dilatation of the affected side does not exist, while in the latter, if the masses be large, it generally does. It appears to me that this distinction cannot be rigidly maintained, because carcinomatous infiltration of the lung is so frequently associated with tumours in the pleura and mediastinum as in the case just related; and, besides, if the disease be of some duration, pleuritic effusion may also be anticipated, which necessarily alters the dimensions of the affected side, and modifies many of the most important physical signs obtained by inspection, auscultation and percussion. The presence of a large quantity of fluid in the right pleura of my patient, occasioned dilatation of the side; it also greatly diminished the intensity and extent of the bronchial respiration, and bronchophony usually present in carcinomatous disease of the lung, and it likewise prevented the transmission of the heart's sounds to the right side of the thorax. Lastly, in the foregoing case the pressure of an enlarged gland on the trachea deprived us of most of the phenomena to be derived from the voice.

From a comparison of the history of this example of extensive carcinoma in the lung and mediastinum, with those detailed by the several authors I have cited, it may be stated that when a patient is manifestly suffering from severe affection of the respiratory organs, with physical signs, offering close analogies to those detected in consolidation of the lung, or in copious pleuritic effusion, and yet presenting anomalies not compatible with either of those morbid conditions; and when, in addition, the history of his case does not accord with that of tubercular infiltration of the lung, nor of chronic pneumonia, nor of pleurisy, and he at the same time exhibits those external characters so carefully enumerated by Dr. Walshe, together with the currant juice sputa, we may safely conclude that he is affected with extensive formation of malignant disease in his lungs. Although we must confess that such disease of the lungs is beyond the power of medical art, still the knowledge of the existence of it may save a patient from much unnecessary suffering. A course of mercurials carried on to ptyalism, repeated local abstraction of blood, long-continued counter-irritation over the affected side, can only impair the vital powers without arresting the local complaint; and it is to be feared that the death of patients has sometimes been accelerated by the operation of "Paracentesis thoracis," performed to give relief to a suspected pleuritic effusion. These considerations almost induce us to subscribe to the sentiment prefixed by Heyfelder * to his "Chapter on Cancer of the Lungs,"—"*Optima hic est medicina, medicinam non facere.*"

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* Studien im Gebiete der Heil-wissenschaft, Bd. i. S. 52.

AN ACCOUNT

OF CERTAIN CASES OF

ACUTE DISEASE IN THE THROAT AND LARYNX,

ONE OF WHICH WAS CURED BY TRACHEOTOMY.

BY JAMES ARTHUR WILSON, M.D.,
PHYSICIAN TO ST. GEORGE'S HOSPITAL.

READ FEBRUARY 27TH, 1844.

BY the physician, in his treatment of cynanche, the means, direct and complete, which surgery affords for the relief of his patient, are too often neglected, or, in their application, unduly deferred. Under the routine practice of bleeding, calomel, and tartar emetic, many have perished by suffocation in this complaint, whom tracheotomy would have kept alive.

In November 1830, I attended, with Dr. Nevinson and Mr. Keate, a gentleman, Mr. C. B., of middle age, who died of cynanche, supervening on erysipelas of the chin, after a struggle of three days for his breath. Some small warty tumours had been removed from the lower lip, a week before the invasion of the last fatal symptoms; and to this operation the erysipelas had immediately succeeded.

The patient, when I first saw him, by the desire of Mr. Wood, of Bolton-street, on the morning of November 12th, complained of a sense of suffocation, with inability to swallow. His face was of a dull leaden hue—its expression one of extreme anxiety. He was unable to protrude the tongue, which was covered with a white fur, and a large quantity of thick viscid saliva was continually flowing from his mouth. The skin was warm—the pulse oppressed, and not exceeding 80 beats in the minute. There was pain on pressure of the larynx.

He told me, with difficulty, and in a low whisper, that he could " neither eat, drink, or sleep." He was continually moving about the house, with excessive restlessness of manner. On the evening of the same day, having been freely bled, he was somewhat relieved. The pulse had risen to 90 beats in the minute—the skin was warm and moist—the face had become fuller, and he had slept for nearly twenty minutes; but he was still unable to swallow, though he could open his mouth more widely than in the morning.

He was now harrassed by violent cough, with a frequent rejection of thick mucus. On the morning of November 13th, his breathing was less difficult, yet still very laborious. The countenance was improved. He had swallowed a small quantity of liquid, and had slept for nearly three hours. He was, however, quite unable to articulate, and, on being questioned as to his feelings, wrote down the words, " *Gutta cavat lapidem.*" Later in the day, his breathing had again become exceedingly laborious. The anxiety of countenance had returned—his eye was glassy, yet wild in its expression—his manner very much agitated. The pulse, now hurried, had been irregular. The skin was over moist. At nine on the following morning, November 14th, he died, apparently by suffocation.

On an examination of the body, two days after death, the epiglottis and posterior membrane of the tongue were found to be highly vascular and thickened—the fauces and pharynx presented, everywhere, a dull ashen appearance. Their investing mucous membrane was soft and quaggy, by the infiltration of a dirty yellow pus in the subjacent cellular tissue. In the immediate neighbourhood of the glottis, the mucous membrane was quite disorganised, and beginning to separate by slough. There was no communication between this deposit of matter, and the erysipelatous inflammation of the chin. The larynx beneath the chordæ vocales, and the trachea in its entire length, were free from all thickening, undue vascularity, or other evidence of inflammation.

Just at this time, a woman, Sarah Jones, died in St. George's Hospital, with symptoms of malignant cynanche, in less than twenty-four hours from the date of her admission. She was brought to the hospital late in the afternoon, after the conclusion of my visit, and was dead before I entered the wards on the following day.

The pharynx in this case was thickly covered with lymph; the epiglottis was thickened, but in the larynx the inflammation had not extended below the chordæ vocales.

Thus, in both these cases, the diseased action had run its full course, and was interrupted only by death; yet, in neither instance, had the organic lesion extended below the level of the glottis. It terminated exactly *there*—so that, in both cases, an opening between the thyroid and cricoid cartilages would have afforded entire and instant relief. Had laryngotomy or tracheotomy been practised, both patients might now have been alive.

This reflection, to which I was compelled by the anatomy of disease, made a deep impression on my mind, and became of the greatest practical use to me, thirteen years afterwards, in the treatment of a case, which I now venture to lay before the Society.

Mr. W. C., aged 27, of full habit, and fair florid complexion, complained of slight sore throat, and was observed to be unusually drowsy, on the evening of July 7th, 1843. He afterwards attended a crowded assembly, where he remained until half-past four in the morning; and then walked home to his residence in the neighbourhood. During the night he had danced much, and perspired freely. At supper, having felt but little previous inconvenience, he found some difficulty in swallowing a glass of champagne, which "seemed to cut his throat as it passed." On endeavouring to sleep, he was unable to close his eyes, from general uneasiness of the fauces, with a painful sense of choking on every attempt at deglutition. At ten, a.m., of July 8, he was visited by Mr. Tupper, under whose directions a large number of leeches were applied to the throat. Calomel was likewise given, and other active measures pursued. At two, p.m., the breathing was not relieved—the cheeks were suffused with a purple flush, and the voice had become, for the first time, stridulous—24 oz. of blood were then taken from the arm, which presented the buffy coat, but was very little cupped, and did not coagulate firmly.

At seven o'clock of the same evening, I was requested by Mr. Tupper to meet him in consultation on the case. The patient was then lying on his back, unable to speak articulately, and breathing with great difficulty. By gesture, he complained of pain across the larynx, which was increased by lateral pressure on the alæ of the thyroid cartilage. The countenance was pale, and there was a remarkable stillness of manner, expressive of a dread of movement. The respiration, much hurried, was harsh in sound to the ear, when laid on the chest. Measures were immediately taken for the operation of tracheotomy; and at nine, p.m., Mr. Keate was summoned for the purpose. The patient was at this time bathed in perspiration, and expressed by gesture that his breathing was no better. There had been a large and very offensive action from the bowels; and, on leaving the bed for this purpose, he was much distressed by spasm of the chest.

He seemed, moreover, to be fast lapsing into a state of coma. By an incision, of which the patient seemed scarcely sensible, through the integuments of the lower neck, the trachea was exposed beneath the thyroid gland, and there divided, vertically, to the extent of about one-third of an inch. Through the orifice thus obtained, the cannula was immediately introduced. Some venous blood still continued to flow from the edges of the outer wound. On the first rush of air into the trachea, the patient appeared to feel instant relief, and his countenance began at once to assume its natural expression; but from this time not two minutes could have elapsed, when he was suddenly attacked by most violent spasms of his whole frame, with a struggle for breath, as if threatening immediate suffocation. All consciousness directly ceased, the eyelids closed, the face was livid, the features were distorted, the blood, still bubbling from the wound, became suddenly black as ink. The breath was drawn convulsively, and at long intervals. All movement, excepting that of the pulse, had ceased, and the patient appeared, literally, at his last gasp. During this awful crisis of the young man's fate, which lasted for perhaps a minute, (seemingly for a much longer time,) his head was held forcibly back,—the cannula was withdrawn,—and the orifice in the trachea cleared from blood, and kept widely open. The breathing at length became more natural; the face, no longer ghastly, began to resume the character and tint of life. Not long after this most fearful convulsion, a large quantity of mucus, mixed in part with blood, was rejected, in long viscid ropes, from the mouth; and it was then found that the patient again breathed through the larynx. Upon this, the cannula was finally withdrawn. A profuse perspiration now burst forth from the face, neck, and chest of the patient, who gradually recovered his consciousness, and expressed by writing that his "breathing was quite easy." He slept at intervals during the night, and was convalescent from this time. Early in the following day, the voice was in some measure recovered, by a low stridulous whisper. The power of swallowing did not return till some hours later, and then only by slow degrees. It will be remembered, that, on the invasion of the disease, the patient retained his vocal intonation for ten or twelve hours after he had ceased to swallow. The fluids first taken by the mouth re-appeared, on more than one occasion, with bubbles of air, through the orifice in the trachea. On July 15th, seven days after the operation, the wound, which had suppurated freely, was closed by granulations.

Nothing is more worthy of remark in this case, than the immediate suspension of all diseased action, in the throat and larynx, consequent on the admission of air into the trachea, through the wound made for that purpose. The strain having been thus removed from the inflamed structures, they soon recovered their healthy faculty of nutrition. To the system at large, every draught of fresh air became at once specific, and the process of cure was complete.

For the operation in this disease, practically, it is never too late; but the chance of its success is greatly lessened by a delay, under which the patient, poisoned by his own blood, loses consciousness, and becomes convulsed. Like the ligature of a bleeding artery, tracheotomy is ruled, without consultation, in all cases where danger is imminent, and, within a range of seconds or minutes, might sometimes be justified even after *apparent* death.

For the future, in undertaking, as a physician, the responsibility of directing this operation, I should be urgent in all cases, where delay was possible, for a sufficient interval of time, after the division of the integuments, in which to staunch the flow of blood, previously to the final breach of the trachea. The instrument generally to be preferred for this purpose is the trochar, which closes the wound it makes, curved downwards, and sheathed in the cannula, through which it is afterwards withdrawn.

This method of performing the operation has been fully described by Dr. John Wilson of the Middlesex Hospital, in a paper of very high interest, entitled, "Cases of Laryngitis relieved by Operation," and published in vol. xxv. of the Transactions of this Society.

Since I made this communication to the Society, I have been summoned by Mr. Frogley, of Hounslow, to a case of laryngitis, in which, through the skill and readiness of that gentleman, the life of the patient was saved by the operation of tracheotomy. Miss L. D., a young lady above twenty years of age, fair, and of delicate habit, having suffered for some days from an attack of "influenza," complained on February 1st of general feverish indisposition, and "sore throat."

On February 4th, these symptoms, which in the first instance had been much relieved by medical treatment, returned with great increase of severity. Calomel and antimony were then given, at short intervals of time, and leeches were freely applied to the throat, but without any evident advantage; and on the following day I was requested by Mr. Frogley to consult with him in the case. When I first saw the young lady at nine o'clock in the evening, she was lying low in bed, on her back, and breathing with but little apparent difficulty. The countenance was pale,—its expression somewhat anxious. The pulse was small and rapid. There was an occasional interruption, by "catching" of the breath. She swallowed without pain, but with caution. When questioned, she complained of pain across the upper throat, which extended as low as the cricoid cartilage, and was much increased by pressure, especially on the right side. Within the throat, a dark blush, as if from venous congestion, extended over the mucous membrane of the pharynx and fauces, to the anterior edge of the soft palate, but there was neither swelling nor ulceration in any of these structures. Two grains of calomel, with three of the "grey powder," were now ordered to be taken every two hours, and arrangements were made for the operation of tracheotomy, should it become necessary. The patient, whose manner was remarkably calm, from a true fortitude of spirit, passed the night with tolerable ease; and when Mr. Frogley left her, late on the following evening, was considered in some respects better. He was however called to her in haste, at 2 o'clock in the morning of February 7th, in consequence of a sudden attack of stridulous breathing. The pulse, which, some hours before, had been weak, fluttering, and exceedingly rapid, was now scarcely perceptible. The countenance was ghastly, the eyes were closed, and the symptoms, generally, those of a person fast dying from suffocation. Under these circumstances, Mr. Frogley at once proceeded to operate—though with but faint hopes of preserving life. His only assistants were the younger sister of his patient, and a clergyman, her near relative. A small incision having been made through the skin, immediately above the sternum, the subjacent cellular tissue was separated, principally by the blunt edge of the knife; a large prominent vein was in this way pushed aside, and the trachea finally divided, with the loss of not more than ten or twelve drops of blood. Some little difficulty was experienced on the introduction of the cannula, which was in the end effected by passing a bent probe through it as a director, into the aperture of the wound. Immediately on the first rush of air into the trachea, the patient opened her eyes, and exclaimed, " Oh! now I can breathe." Her complexion very soon resumed its natural tint, and her voice its proper intonation. She swallowed with ease, and soon fell asleep, breathing tranquilly through the cannula, which was carefully secured by threads, and straps of adhesive plaister. At 4 p.m. of the same day, I found her without complaint, excepting that she had just begun to feel a little pain, from pressure of the tube, during the act of deglutition. Observing that no air now escaped through the cannula, so as to affect the flame of a taper held before its aperture, I directed its removal, and we then enjoyed the great satisfaction of knowing that in the thirteen hours which had elapsed since the operation, the inflamed larynx had effected its own cure. By the vent that relieved its mechanism from pressure, this organ had recovered the means and material of its healthy nutrition.

Under the date of February 21st, exactly a fortnight after the operation, my old friend and pupil, Mr. Emmott, informs me, that Miss L. D. " is going on as well as we can wish; the wound is all but healed, and she has not a single bad symptom. About 30 hours after the operation, she coughed up some dense membranous looking phlegm, after which she did not breathe through the wound."

In reflecting on the admirable results, whether immediate or secondary, of this operation, it should not be forgotten that they are determined by a twofold vital necessity; for, in respiration, a mephitic vapour continually finds its escape by the passage through which the atmospheric draught is compelled to enter.

ON THE PRESENCE

OF

OXALATE OF LIME IN THE URINE.

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READ APRIL 9th, 1844.

The appearance of octohedral crystals in the urine appears first to have been described by M. Vigla. Dr. Bird in England, and afterwards M. Donné in France, recognised the very frequent occurrence of such crystals, and by re-actions observed by the microscope, inferred that these crystals were oxalate of lime. A case occurred to me, in which, from the quantity of octohedral crystals passed, I was able to examine the sediment in nearly the usual method. This, though still not absolutely conclusive, renders the inference, to the chemist, at least more probable. Other forms of oxalate of lime have been mentioned. Dr. Bird describes dumb bells. Such crystals I have frequently met with, deposited on the evaporation of some urine, but so soluble in water, that they must differ altogether in composition from those observed by Dr. Bird.

M. Donné ascribes another form to oxalate of lime, namely, smooth discs or globules with transparent centres, resembling blood-globules in urine, which indeed at first I supposed they were. I have found these most frequently mixed with the octohedral crystals, but I could not obtain them separately, so as to admit of examination.

Forms derived from the octohedron are sometimes met with, as cubes, which are occasionally found, and once I saw dodecahedral crystals mixed with cubes and octohedra.

The states of the system in which octohedral crystals are seen, vary exceedingly. In acute rheumatism and gout, chronic rheumatism, aggravated hypochondriasis and hysteria, and diabetes, I have found such crystals. In one case in which the rheumatism was slight, the influence of diet and exercise on the mixed deposit of urate of ammonia and oxalate of lime was made the subject of experiment. In other cases in which these octohedral crystals occurred, the symptoms were altogether different; irritation of the urinary organs being the most prominent. The concretion of the crystals, into oxalate of lime-gravel, seemed in one patient to be the cause of this diversity of symptoms.

The connection observed by MM. Donné and Rayer, between seminal weakness and oxalate of lime, I found in two cases; and in a third, where three small oxalate of lime calculi had been passed at long intervals, and octohedral crystals were constantly found in the urine, on one examination a few dead spermatozoa were seen.

July 1842.—John Saunders, æt. 47, formerly a soldier, was admitted an out patient of St. George's Hospital. March 1843 I examined the deposit which had been continually observed in the urine. It consisted of innumerable crystals of uric acid, mixed with octohedral crystals. For twenty years he has suffered more or less from urinary disorders. In 1828 he had rheumatic fever, and says he was confined to bed eleven weeks. The small joints of the fingers are now larger and stiffer than natural, and occasionally very painful.

The urinary sediment was thrown on a filter and washed with distilled water. The red residue was dried, reduced to a fine powder, and treated with dilute hydrochloric acid, which left most of the uric acid undissolved. The acid liquid was filtered, and ammonia gave a very considerable precipitate, when added in excess. When evaporated to dryness, and heated on platinum, the muriate of ammonia was driven off, and the residue effervesced strongly when thrown into dilute acid, and left an alkaline ash when heated more highly. The ash was with difficulty soluble in water, and gave a precipitate with oxalate of ammonia. Hence some organic acid salt of lime was present; and as oxalate of lime is known to occur in octohedral crystals, the conclusion that these crystals were oxalate of lime is most probable.

October 4th, 1843, I examined the urine of a patient of Mr. Cutler's, and at the same time three small renal calculi, which had been passed, one in July, another in August, and the third in September. Late in October I also examined a fourth calculus. The urine under the microscope contained multitudes of octohedra mixed with some crystals of uric acid. All the calculi were found to consist of oxalate of lime mixed with uric acid.

In searching for these octohedral crystals, I examined some cases of acute rheumatism. The first was Nov. 27th, 1842, a patient of Dr. Seymour's, in St. George's Hospital. Tongue coated, pulse full and quick. Complains of much pain with redness and swelling, chiefly in the upper extremities. The urine was loaded with a reddish pink sediment, which was dissolved in warm distilled water, and a few drops of the solution were examined by the microscope. Octohedral crystals were seen in great numbers. This is the first attack of acute rheumatism. Had never previously suffered from rheumatic pains. Was bled four times out and in the house for this attack.

Since this time I have frequently found these octohedral crystals in cases of acute rheumatism which have been in St. George's Hospital, though the time at which they occur in rheumatic urine varies considerably.

It is very common to find these crystals also mixed with urate of ammonia in chronic rheumatism. In the following case I was enabled to make some experiments regarding the effect of diet and exercise on the deposit. In it I first observed that the octohedral crystals seemed to vary in quantity at different periods of the day.

March 7th, 1843.—A medical man, æt. 30. Had had acute rheumatism some years previously, and *now* has occasionally slight attacks. The urine usually contains a red sediment, which with the microscope is seen to be mixed with octohedral crystals.

During the twenty-four hours, the water each time it was passed was kept in a separate glass vessel, and it was subjected to examination the following morning, when the specific gravity and the appearance were noted; the time and the quantity having been previously registered. The food was plain, the quantity drunk usually about 50 ounces daily. The exercise always walking. No medicine whatever was given during the experiments, which lasted four weeks.

March 7th.—Animal diet only; no bread or vegetables. Exercise moderate—between 5 and 6 miles. Bowels inactive. Skin cold. Urine passed at

Eight o'clock	Eleven	Three	Six	Eleven	
14 ℥	8 ℥	8 ℥	3 ℥	6 ℥	= 39 ℥
very thick	less thick	more so	more so	more thick	Average.
1019·45	1016·21	1020·07	1027·79	1025·60	= 1021·82

March 8th.—Bowels acted. Skin cold. Animal food and exercise as before.

Seven	½-past Eleven	¼-past Three	Six	Eleven	
13½ ℥	13 ℥	5¾ ℥	2½ ℥	5½ ℥	= 40¼ ℥
little thick	clear	thick	thick	more thick	
1020·22	1012·04	1022·39	1027·02	1028·10	= 1022·13

March 9th.—Bowels inactive. Skin cold. Animal food and exercise as before.

Seven	½-past Eleven	¼-past Three	Six	Eleven	
12 ℥	7½ ℥	4½ ℥	2½ ℥	7½ ℥	= 34 ℥
thick	thick	thick	thick	more thick	
1021·12	1011·89	1026·59	1026·09	1024·70	= 1021·37

March 10th.—Bowels acted slightly. Skin perspiring from exercise, which was increased to about eleven miles. Diet as before.

½-past Seven	½-past Eleven	¼-past Three	¼-past Six	Eleven	
13 ℥	6½ ℥	5½ ℥	3½ ℥	6 ℥	= 34 ℥
thick	thick	less thick	less thick	thick	
1024·39	1022·07	1025·94	1027·33	1029·64	= 1025·87

March 11th.—Bowels acted slightly. Exercise eleven miles. Diet as before.

Seven	¾-past Eleven	¼-past Three	Six	Eleven	
14 ℥	7 ℥	5½ ℥	3 ℥	6¾ ℥	= 36¼ ℥
slight cloud	thick	thick	thick	clear	
1026·40	1027·28	1026·86	1031·34	1025·63	= 1027·50

March 12th.—Bowels inactive. Skin very cold. Exercise—very small quantity; about two miles. Diet—meat with a little bread three times in the day.

Eight	One	Six	½-past Ten	
12 ℥	6¼ ℥	5¼ ℥	11¼ ℥	= 34¾ ℥
clear	thick	thick	clear	
1024·86	1024·39	1023·47	1015·44	= 1022·04

March 13th.—Exercise moderate. Diet as yesterday.

½-past Seven	¼-past Eleven	½-past Three	Six	Eleven	
13 ℥	5 ℥	4½ ℥	2¼ ℥	5 ℥	= 29¾ ℥
very thick	thick	thick	thick	thick	
1022·57	1023·60	1025·94	1027·48	1028·70	= 1025·66

March 14th.—Bowels inactive. Skin warmer. Exercise and diet as before.

½-past Seven	½-past Eleven	Three	Six	Eleven	
10 ℥	7 ℥	4½ ℥	2¾ ℥	4½ ℥	= 28¾ ℥
thick	less thick	thick	thick	slight cloud	
1027·64	1018·06	1021·92	1025·32	1026·09	= 1023·80

March 15th.—Temperature warmer than it has hitherto been.

Eight	Eleven	Three	Six	Eleven	
18 ℥	12 ℥	13 ℥	4¼ ℥	6½ ℥	= 53¾ ℥
clear	clear	clear	clear	clear	
1014·02	1009·57	1012·66	1021·46	1022·69	= 1018·08

The exercise and diet were the same as in the three previous days. The quantity of water drank was not at all more. The exercise was not at all stronger. I could find no cause for the great increase in the quantity passed. On examination by the microscope the number of octohedral crystals were found to be innumerable. Up to this day they had been present only in very small numbers.

March 16th:—

Eight	½-past Eleven	Three	¼-past Six	Eleven	
17 ℥	8 ℥	4½ ℥	5 ℥	4¼ ℥	= 38¾ ℥
clear	clear	thick	clear	thick	
1016·05	1012·56	1021·61	1020·69	1029·18	= 1020·01

Octohedral crystals were present in larger number than usual.

March 17th:—

½-past Seven	½-past Eleven	Three	Six	Eleven	
13 ℥	14 ℥	6½ ℥	4½ ℥	6 ℥	= 44 ℥
clear	clear	clear	clear	thick	
1023·93	1011·11	1021·46	1023·00	1024·39	= 1020·77

The exercise has been as before. Mixed diet three times daily. Bowels acted once in the two days.

March 18th :—

Eight	Eleven	Three	Six	Eleven	
18 ℥	16½ ℥	5 ℥	5 ℥	8 ℥	= 52½ ℥
clear	clear	clear	thick cloud	clear	
1014·66	1009·79	1019·61	1023·78	1023·93	= 1018·35

March 19th :—

½-past Seven	Eleven	½-past Two	Six	Eleven	
18 ℥	10 ℥	10 ℥	6 ℥	8 ℥	= 52 ℥
clear	clear	clear	clear	clear	
1012·22	1012·94	1013·89	1020·69	1021·00	= 1018·14

March 20th :—Little sore throat. Some headache. Bowels acted well. Skin perspired with walking.

½-past Seven	Eleven	Three	Six	Eleven	
18½ ℥	8 ℥	4 ℥	4 ℥	6½ ℥	= 41 ℥
clear	clear	thick	thick	thick	
1016·52	1017·75	1023·60	1024·86	1027·28	= 1022·00

Diet the same as hitherto. Exercise increased to upwards of ten miles. Deposit very pink.

March 21st.—Bowels acted slightly. Sore throat and headache gone.

Eight	½-past Ten	½-past Two	Six	Eleven	
15½ ℥	8 ℥	8 ℥	5½ ℥	14½ ℥	= 51½ ℥
clear	clear	clear	clear	clear	
1019·76	1009·11	1020·38	1021·92	1014·82	= 1017·19

Diet the same as hitherto. Exercise about four miles. The increased quantity at eleven o'clock at night attributed to a hot room and cold walk.

March 22nd :—

½-past Seven	½-past Eleven	Three	Six	Eleven	
12 ℥	14½ ℥	7 ℥	3½ ℥	4½ ℥	= 41½ ℥
clear	clear	clear	clear	clear	
1022·69	1009·26	1024·70	1024·24	1027·78	= 1021·73

Diet the same as previously. Bowels acted. Skin warm with exercise.

March 23rd :—

½-past Seven	½-past Eleven	Three	Six	Eleven	
15 ℥	10 ℥	6¼ ℥	4½ ℥	10 ℥	= 45¾
clear	clear	clear	clear	clear	
1018·22	1017·14	1019·76	1023·00	1014·05	= 1018·43

The urine contains a great number of octohedral crystals.

March 24th :—

½-past Seven	½-past Eleven	Three	Six	Eleven	
20 ℥	10 ℥	6½ ℥	5 ℥	6 ℥	= 47½ ℥
clear	clear	thickish	thick	thick	
1014·54	1019·14	1025·64	1019·61	1029·61	= 1021·90

Breakfast—bread, egg, and boiled beef. Dinner—mutton. Bowels inactive. Exercise between four and five miles.

March 25th.—Bowels acted. Skin very cold (high wind). Diet—beef and bread. No sugar.

½-past Seven	½-past Eleven	Three	Six	Eleven	
12½ ℥	10½ ℥	5 ℥	5¼ ℥	7¼ ℥	= 40¾ ℥
clear	clear	thick	clear	clear	
1022·69	1016·67	1025·88	1026·71	1024·39	= 1023·26

The exercise to-day was increased to upwards of ten miles.

March 26th.—Bowels inactive. Day very cold. Very sharp east winds. Meat only, with an egg. No sugar. Meat three times in the day.

Eight	Eleven	¼-past Two	Six	Eleven	
20 ℥	11¼ ℥	14 ℥	6¼ ℥	12½ ℥	= 64 ℥
clear	clear	clear	clear	clear	
1014·05	1008·95	1015·19	1021·61	1013·28	= 1014·61

Exercise—the smallest hitherto taken ; about three miles. Quantity drank, about the same as in previous experiments. The water passed at six o'clock contained oxalate of lime octohedra in unusual number; the crystals aggregated in masses.

March 27th.—Bowels inactive. Temperature less cold. Diet—two eggs, beef and mutton, water and tea without sugar. Exercise moderate.

½-past Seven	Eleven	Three	Six	Eleven	
20 ℥	6½ ℥	7 ℥	3 ℥	8½ ℥	= 45
clear	clear	thick	clear	clear	
1012·50	1021·92	1025·47	1029·03	1021·46	= 1022·07
Scarcely any octohedral crystals.			Aggregated masses of oxalate of lime.		

March 28th.—Bowels inactive. Skin warmer. Diet—animal food only. Exercise, upwards of ten miles. No sugar.

½-past Seven	Eleven	Three	Six	Eleven	
18 ℥	8½ ℥	10 ℥	4½ ℥	16½ ℥	= 57½ ℥
clear	clear	clear	clear	clear	
1015·28	1018·83	1016·36	1023·00	1013·28	= 1019·35
Little oxalate of lime.		Octohedra in considerable quantity, but less than yesterday.			

March 29th.—Bowels acted. Diet mixed, consisting of bread and meat. Exercise, about five miles. No sugar.

Seven	Eleven	Three	Six	Eleven	
20 ℥	10½ ℥	6½ ℥	4½ ℥	8 ℥	= 49½ ℥
clear	clear	thick	clear	clear	
1014·54	1015·75	1017·91	1021·00	1021·30	= 1018·10
	Little oxalate.		Multitudes of octohedra.		

March 30th.—Bowels inactive. Exercise about the same. No sugar.

Eight	Eleven	Three	Six	Eleven	
23 ℥	10¼ ℥	5¾ ℥	5 ℥	5½ ℥	= 49½ ℥
clear	clear	thick	clear	clear	
1010·50	1013·58	1022·23	1023·16	1027·78	= 1019·45
Very few octohedral crystals.			Many more.	Great numbers, but not in masses.	

March 31st.—Bowels acted. Exercise about the same. Dinner, chiefly meat; at other times, less bread.

Seven	Eleven	Three	Six	Eleven	
16½ ℥	11½ ℥	5¼ ℥	4¼ ℥	5¼ ℥	= 42¾ ℥
clear	clear	clear	clear	clear	
1014·82	1012·35	1021·77	1024·08	1025·01	= 1019·80
Few octohedra.	More octohedra.		Still more octohedra.		

April 1st.—Bowels inactive. Skin warmer. Exercise and food much as before. No sugar.

½-past Seven	½-past Eleven	Three	Six	Eleven	
13 ℥	7¼ ℥	5 ℥	5½ ℥	5¼ ℥	= 36 ℥
clear	clear	thick	clear	clear	
1022·23	1019·76	1024·70	1024·39	1024·08	= 1023·03
		Very few octohedra.		Innumerable octohedra forming a visible sediment.	

April 2nd.—Bowels acted. Skin warm. Diet, chiefly meat, with little bread three times in the day, with water and wine. Exercise moderate. No sugar.

½-past Seven	Eleven	Three	Six	Eleven	
18 ℥	8 ℥	8 ℥	8 ℥	11 ℥	= 53 ℥
clear	clear	clear	clear	clear	
1015·44	1013·15	1018·53	1021·00	1009·88	= 1015·60
Very many very small octohedra.		Very few octohedra.			

April 3rd.—Bowels acted. Skin warm. Diet and exercise as yesterday.

½-past Seven	Eleven	Three	Six	Eleven	
16¾ ℥	9 ℥	5¼ ℥	5 ℥	5 ℥	= 41 ℥
clear	clear	clear	clear	clear	
1018·22	1018·53	1023·93	1023·00	1025·64	= 1021·86

Very few octohedral crystals.

Hence we have:—

In 28 days, 1224¼ ounces. Sp. gr. on average, 1020·75. Average daily, 43¾ ℥ nearly.

At Eight o'clock, morning	Eleven	Three	Six	Eleven at night.
443¾ ℥ 1018·90	261½ ℥ 1015·90	184 ℥ 1021·83	123¼ ℥ 1024·14	211¾ ℥ 1023·02
about 15¾ ℥ daily	9¼ ℥ daily	6½ ℥ daily	4½ ℥ daily	7½ ℥ daily

Eight days on meat only, with water, tea, and wine.

Quantity, 350¾ ℥. Average sp. gr., 1022·41. Average quantity daily, 43¾ ℥ nearly.

124½ ℥ 1020·42	68¼ ℥ 1019·91	60½ ℥ 1022·36	28¼ ℥ 1026·65	69¼ ℥ 1022·71
15½ ℥ daily	8½ ℥ daily	7½ ℥ daily	3½ ℥ daily	8¾ ℥ daily

Twenty days on mixed diet without vegetables.

Quantity, 873½ ℥. Average sp. gr., 1020·32. Average quantity daily, 43¾ ℥ nearly.

319¼ ℥ 1018·40	193¼ ℥ 1015·30	123½ ℥ 1021·63	95 ℥ 1023·14	142½ ℥ 1023·15
16 ℥ daily	9½ ℥ daily	6¼ ℥ daily	4¾ ℥ daily	7¼ ℥ daily

Five days in which the exercise was in great excess.

Quantity, 209 ℥. Average sp. gr., 1023·20. Average quantity, 41¾ ℥.

75½ ℥ 1021·07	40½ ℥ 1020·52	30 ℥ 1023·73	20¼ ℥ 1026·65	43 ℥ 1024·04
15 ℥ daily	8 ℥ daily	6 ℥ daily	4 ℥ daily	8½ ℥ daily

Twenty-three days in which the exercise was moderate.

Quantity, 1018 ℥. Average sp. gr., 1020·11. Average quantity, 44 ℥ daily.

368¼ ℥ 1018·01	221 ℥ 1014·81	153¾ ℥ 1021·33	107¼ ℥ 1023·60	168¾ ℥ 1022·80
16 ℥ daily	9½ ℥ daily	6¾ ℥ daily	4¾ ℥ daily	7¼ ℥ daily

Three days in which the exercise was in excess, and the food only animal.

Quantity, 128 ℥. Average sp. gr., 1023·57. Average quantity, 42½ ℥.

45 ℥ 1022·02	22 ℥ 1022·72	21 ℥ 1023·05	11 ℥ 1027·22	29 ℥ 1022·85
15 ℥ daily	7¼ ℥ daily	7 ℥ daily	3¾ ℥ daily	9¾ ℥ daily

Two days in which the exercise was in excess, and the food mixed.

Quantity, 81½ ℥. Average sp. gr., 1022·63. Average quantity, 40½ ℥.

30½ ℥ 1019·60	18½ ℥ 1017·21	9 ℥ 1024·74	9¼ ℥ 1025·78	13¾ ℥ 1025·83
15¼ ℥ daily	9¼ ℥ daily	4½ ℥ daily	4½ ℥ daily	6¾ ℥ daily

Five days. Exercise moderate. Diet, animal food only.

Quantity, 222¼ ℥. Average sp. gr., 1020·51. Average quantity daily, 44½ ℥.

79½ ℥ 1017·47	46¼ ℥ 1014·20	39¼ ℥ 1021·94	17¼ ℥ 1026·34	40 ℥ 1022·63
16 ℥ daily	9¼ ℥ daily	7¾ ℥ daily	3½ ℥ daily	8 ℥ daily

Eighteen days. Exercise moderate, and the diet mixed.

Quantity, 803¼ ℥. Average sp. gr., 1020·10. Average quantity daily, 44½ ℥.

288¾ ℥ 1018·16	185¼ ℥ 1014·98	114¼ ℥ 1021·11	86 ℥ 1022·85	128¾ ℥ 1023·41
16 ℥ daily	10¼ ℥ daily	6¼ ℥ daily	4¾ ℥ daily	7 ℥ daily

Omitting the times of day we have :—

sp. gr.
28 days' average, daily quantity, and specific gravity . . = 43¾ ℥ 1020·75

Diet.

8 days. Meat diet only. Average quantity and sp. gr. = 43¾ ℥ 1022·41
20 days. Mixed diet . . . . = 43¾ ℥ 1020·32

Exercise.

5 days. Exercise in great excess. Average quantity, and specific gravity . . . . = 41¾ ℥ 1023·20
23 days. Exercise moderate . . . . = 44 ℥ 1020·11

Diet and exercise.

(1) 3 days. Exercise in excess. Diet only animal. Average quantity and specific gravity . = 42½ ℥ 1023·57
(2) 2 days. Exercise in excess, and diet mixed . . . = 40½ ℥ 1022·63
(3) 5 days. Exercise moderate; diet only animal . . = 44½ ℥ 1020·51
(4) 18 days. Exercise moderate, and diet mixed . . = 44½ ℥ 1020·10

If now we assume that (2) differs from (3) and (4) only in the quantity of water, then an average diminution of 4 ℥ of water increases the average sp. gr. 212 parts in 10,000, and at the same rate the diminution of 2 ℥ should increase sp. gr. 106. And if 40½ ℥ have sp. gr. 1022·63, 42½ ℥ should have sp. gr. 1021·57; but from (1) they had specific gravity 1023·57, that is, 200 parts in 10,000 more than on the above hypothesis they should have. Hence with animal diet, and an excess of exercise, there is a considerable increase in the specific gravity of the urine.

By comparing (3) and (4), we see that whilst the exercise is moderate, the difference in specific gravity is very small, when a diet of only animal food, and of animal food and bread are compared. By comparing (1) and (2), it appears, that when the exercise is increased, the specific gravity is considerably greater when living on animal food than it is when living on a mixed diet of animal food and bread.

Regarding the deposit of urate of ammonia, it may be observed that the diet was as much as possible animal; yet at the end of the month, the water in general was far clearer than it was when the experiments were begun; still the disappearance of urate of ammonia did not immediately follow restriction to animal diet.

Regarding the oxalate of lime, it may be observed, that though, during the whole month, no vegetable excepting bread was taken, and even this for eight days was entirely abstained from, still, even at the end of the month, oxalate of lime appeared in large quantities. The occasional great increase in the quantity of urine when oxalate of lime was passing in large quantities is worthy of attention.

It would be easy to multiply examples of the connection between octohedral crystals and rheumatism; but as no variation in the treatment of ordinary rheumatism seems to be thereby indicated, the fact seems only interesting, as showing the close connection between the red deposit and octohedral crystals.

Octohedral crystals in the urine, and symptoms of a totally different kind, frequently occur together.

The patient complains of pain in one or both loins, of frequent desire to pass his water, which is sometimes in very small quantity; at other times so much as to simulate diabetes. There are sudden calls to empty the bladder, and if it is delayed, considerable pain is produced. The urine when examined contains only a slight cloud, which does not disappear with heat. In other respects it appears natural. When examined with the microscope, the cloud is seen to consist sometimes entirely of octohedral crystals. More frequently of these crystals mixed with globules of mucus, and sometimes with large and small scales of epithelium. These cases, in consequence of the frequent desire to make water, usually fall under the notice of the surgeon. From Mr. Cutler I have frequently received such water for examination.

The above symptoms closely resemble those which are sometimes produced by a small calculus in the kidney. And in one case which I saw, they suddenly ceased after sharp pain in the course of the right ureter, and slight retraction of the testicle, which lasted only a few seconds. Innumerable white octohedral crystals united together were found in the water afterwards. To the naked eye, this mass of crystals was scarcely visible. Such concretions are very easily overlooked from their transparent whiteness. These crystals, from their great insolubility, and the consequent affinity of oxalic acid for lime, are far more apt to be formed in the kidney than crystals of uric acid. For urate of ammonia requires to be some time in contact with a dilute acid, before it assumes the sharp crystalline form, which is well described as lancet-shaped. Thus in gout, the urine may not unfrequently be passed from the bladder, without having crystallised: no trace of uric acid crystals, if the examination is immediately made, can be seen with the microscope, but after the lapse of some hours, multitudes of the well-known crystals appear.

The treatment which proved most beneficial in these cases of irritation, was that which improved the general health. In two of Mr. Cutler's patients the symptoms followed mental anxiety. Medicines had little effect, but as the causes for anxiety disappeared, the symptoms ceased.

ON OBSTRUCTIONS
OF THE
BRANCHES OF THE PULMONARY ARTERY.

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THE obstructions of which it is proposed to treat, are those which are produced by the coagulation of the blood during life in the branches of the pulmonary artery. They are not of rare occurrence, and are always important, for they are sometimes the sole or chief cause of death, and must in all cases seriously affect the progress of the diseases with which they are associated. Yet obstructions of this kind have hitherto scarcely attracted attention. In the best works on Morbid Anatomy and on Diseases of the Chest, they are either not alluded to, or are vaguely and incidentally mentioned; and in the only paper* which I can find expressly treating of them, there are but four cases related, and these, though carefully detailed, are unconnected, and give a very imperfect account of the nature of the disease, and of the circumstances in which it occurs. I trust, therefore, that the following observations will be acceptable to the Society.

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* "Recherches et Observations sur la Coagulation du Sang dans l'Artère Pulmonaire et ses effets, par M. C. Baron." Archives Générales de Médecine, Ser. III. T. II. p. 1. Paris, 1838.

From the arrangement of the pulmonary arteries, between which there is no anastomosis, except in their capillaries and smallest branches, it results that whenever the flow of blood through the capillaries of any part of a lung is prevented, there must also be a stagnation of the blood in all the branches from which those capillaries are derived; and in these circumstances, the blood coagulates in the vessels, and passes through various changes.

Now, these conditions are present in several diseases:—First, in *pulmonary apoplexy*, especially in that form of it in which the blood collects in a defined and compact dark mass. At a meeting of the Society two years ago, I stated, what more recent examinations have confirmed, namely, that in all, or in the great majority of these cases, the branches of the pulmonary artery leading to the seat of effusion are blocked up by coagula, which present the distinguishing characters of those formed long previous to death. In most cases, (perhaps in all those which depend only on disease of the heart,) the coagula are found in those branches alone in which the circulation is obstructed, but in some instances they extend further, the apoplectic effusion being inconsiderable in comparison with the size and number of the branches which are filled by coagula. These cases, examples of which will be described, make it highly probable that sometimes the formation of coagula in the pulmonary arteries, when found combined with pulmonary apoplexy, has been, not consequent on the effusion of blood, but coincident with it, or has, in some measure, preceded it.

Secondly.—The capillary circulation is usually obstructed, or much hindered, in the advanced stages of pneumonia, and the arrested blood coagulates in those branches which correspond to the inflamed and consolidated portions of lung. So far as I have seen, the coagula in these cases are not sufficiently large to fill the vessels; circulation enough, therefore, may go on to prevent gangrene; but still, such permanent, though imperfect obstacles to the passage of blood must materially impede and endanger the recovery of the diseased part, and no doubt the formation of these clots often precedes the complete obliteration of the pulmonary arteries, when, after partial recovery from pneumonia, the diseased portion of the lung has healed and contracted. Sometimes, indeed, coagula thus formed in pneumonia are fatal. They were so in one of the cases mentioned by M. Baron. A patient of M. Louis' was suddenly seized with symptoms of asphyxia during convalescence from pneumonia: he died in five or six hours, and "nothing could be found to explain his death, except some soft non-adherent clots, which obstructed the cavity of the pulmonary artery."*

Thirdly.—When the matter of medullary cancer or of softened scirrhus passes into the blood, and, circulating with it, is stopped in the lungs, the branches of the pulmonary artery may be to a great extent filled by it and by coagulated blood or fibrine mixed with it. In the following case there is a good example of this fact.

CASE I.

A woman of drunken habits, 45 years old, had been in St. Bartholomew's Hospital with all the symptoms and appearance of one suffering from cirrhosis. She could assign no distinct date to the commencement of her disease, and died very much emaciated, jaundiced, and with considerable ascites and anasarca of the lower extremities. On the examination of the body thirteen hours after death, I found (to mention only those parts which are of present interest) the liver large, hard, yellow and dry, and adherent to a contracted great omentum. It contained several medullary tumours composed of very soft tissue, out of which could be pressed a large quantity of pulpy matter, of golden or king's-yellow colour, mixed with various shades of green and brown. A quantity of the same matter, but more nearly fluid, seemed loosely effused in the substance of the liver, and some more of it was contained in the large hepatic blood-vessels. The lungs were nearly free from adhesions. In each of them, irregularly scattered through every part, there were nearly a hundred small masses of medullary matter of the same bright yellow colour as those in the liver. They did not form any tissue, but appeared loosely effused, so that after any one of them was cut through, each part of it could be wiped away without injuring the structure of the lung. A similar yellow substance, but apparently thinner and more nearly fluid, filled a number of the small branches of the pulmonary artery, in such a manner that, on a section of the lung, fine yellow ramified lines were seen, as if the arteries had been injected with chromate of lead and size, or some thick material. There could be no doubt that the cancerous substance had been conveyed with the blood from the liver to the lungs, where, being arrested and obstructing the minute vessels, it had permitted fresh substance with blood to accumulate behind it. There is a preparation from another case of the same kind in the Museum of St. Bartholomew's Hospital;* but the characters are less marked, because the cancerous matter is uncoloured. I have notes of a third similar case; and in another preparation in the same collection,† the trunk of the left pulmonary artery is filled by a large firm mass, apparently composed of fibrine, mixed with cancerous matter, which extends into all the branches that are preserved. This was taken from a lady from whom, in the course of eleven years, Mr. Lawrence (to whom I am indebted for the history) removed at different times, both breasts and three large tumours which formed upon or between the cicatrices left after former operations. In the first breast removed (in May 1828) there appeared only an enormous enlargement of the mammary gland ; in the second (in 1834) a large tumour, resembling most the carcinoma hyalinum of Müller, was removed. In the three following operations performed in 1835, 1837 and 1839, the tumours removed were distinctly medullary. The patient died suddenly while she seemed in progress of recovery. In the examination after death (made by Mr. Crookes) the left lung was found everywhere adherent, congested, and extremely congested: the right lung was not adherent, but pale, œdematous and somewhat emphysematous : its vessels were healthy. There were no cancerous deposits in either lung, nor any in the bronchial glands. With the exception of the stomach, in which there were two or three small ulcers of the mucous membrane, all the abdominal and pelvic organs were healthy, and the abdominal walls and omentum were loaded with fat.

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* L. c. p. 17.

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* Diseases of the Lungs, No. 19.

† Diseases of the Blood-vessels, No. 100.

Fourthly—The branches of the pulmonary artery are often blocked up by clots formed during life in those who die with great œdema of the lungs. In some of these cases the coagulation is probably of the same kind as that which occurs in pulmonary apoplexy from disease of the left side of the heart, that is, it is consequent on the obstruction to the passage of blood through the capillaries. But in general some further condition appears to be necessary; for old coagula are not found in all such cases, and it is probable that mere obstruction at the left side of the heart, if it were so complete as to permit the coagulation of large quantities of the blood during life, would prove fatal before the coagula could undergo any change, for it would affect almost equally the whole pulmonary circulation, and would produce a general and rapidly destructive stagnation. In one of the two following cases adduced as instances of coagula, thus occurring with œdema of the lungs, sufficient evidence of a morbid state of the blood is afforded by the signs of its early decomposition after death.

CASE II.

A man 60 years old, who had in early life drunk hard, and who had suffered during several successive winters from bronchitis and slight anasarca, supervening on emphysema of the lungs, was admitted into St. Bartholomew's Hospital in January 1841. He had his usual winter bronchitis, but it was accompanied by more than usual dropsy, the dyspnœa was greater than it had ever before been, and he was very weak and emaciated. After slowly sinking, he died in the middle of February.

At the examination eight hours after death, I found the following appearances:—The pericardium contained about an ounce of blood-stained fluid. The blood in the heart and large vessels was very softly clotted, and (as it is called) dissolved; and the walls of the vessels, and the fluids in contact with it, were deeply stained. Mixed with the soft clots, there was also a quantity of dirty-coloured fluid blood. All the cavities of the heart were rather larger than is natural; and their walls were thin, soft, and weak. The borders of the tricuspid valve were slightly thickened and opaque. The pulmonary valves were healthy. The mitral valves had thickened and opaque free margins; their chordæ tendineæ were thick and opaque, but not shortened; the valves of the aorta were also, but in a slight degree, thickened. In the aorta itself there were a few small spots of morbid yellow deposit, and there were several of the same kind in the secondary branches of the pulmonary artery. There were almost universal adhesions of the pleuræ, and in those over the right lung, there was a plate of bone more than five inches square. In the only part where there were no adhesions, at the back of the right side of the chest, the pleural cavity contained some blood-stained fluid. The mucous membrane of the bronchi was rather turgid with blood, and many of them were filled by thick mucus. There was slight general emphysema of both lungs. Their texture was very œdematous and *rotten*, easily broken, and discharging a dirty greenish fluid, with but little air: at their lower parts they both had the appearance of compressed lungs; at the apex of the right, there was a group of old dry blackened tubercles. The branches of the pulmonary artery in nearly every part of both lungs, from those about $\frac{1}{8}$th of an inch in diameter to the smallest that I could trace, were blocked up by round, firm, grumous, brittle clots. These, in many places, adhered closely to parts of the inner wall of the vessels; their colours were black, reddish, and white irregularly mixed, and in several places they appeared softened at their centres. Among the veins I examined the pulmonary, the azyga, superior and inferior cavæ, the porta (to its smaller branches), and the iliac veins, but all were healthy, and contained no coagula like those in the pulmonary arteries; but the femoral veins were filled by dark, firm, round coagula, with some of the blood discoloured; and these extended as far as the origins of the deep femoral veins, beyond which I did not dissect them.

The abdominal cavity contained about two pints of dark yellow fluid. The liver was small, pale, soft, and a little granular on its surface. The kidneys were small, pale, mottled, and slightly granular, and contained numerous small serous cysts. The digestive canal was healthy, except that its membranes were pale and soft; the spleen was soft, and pale purple. There was a stricture in the membranous part of the urethra, and the muscular coat of the bladder was hypertrophied.

CASE III.

An habitually hard-drinking Irish-woman 50 years old, was received into St. Bartholomew's Hospital on the 23rd of February 1843, suffering with extreme dyspnœa, cough, dropsy, and albuminous urine. She could give no better account of herself, than that she had had these signs of disease in a less degree, "off and on," for five years. Her state was hopeless when she was admitted, and she died on the 27th, after a long agony.

The body was examined 20 hours after death. It was generally anasarcous, and all the tissues were pale and flabby. The skull was thick and hard, there was a small tumour under the dura mater, and the brain was atrophied. The pericardium contained about four ounces of clear pale fluid; and there were some thick white spots upon the surface of the heart. The right auricle was very large, and its walls were thick and strong. The right ventricle also was greatly dilated and hypertrophied, and there were several small round and oval masses of bright yellow fibrine adhering in the recesses, between the fleshy columns at its apex; some of them were hollow. The left auricle and ventricle were dilated and hypertrophied, but less than those on the right side. All the muscular tissue of the heart was strong and robust. The tricuspid valve was thickened and opaque at its free edge, and appeared small in comparison with the orifice; the pulmonary valves and the trunk of the artery were large, but healthy in their structure. The mitral valve was contracted, thickened and opaque, but pliant; there were several small vegetations on its margin, and the chordæ tendineæ were short and thick. The aortic valves were opaque, and slightly curled outwards; there were small masses of firm fibrine, fixed on them, near the corpora Arantii. In the aortic arch there was abundant fatty deposit; and the lining membrane was thickened, opaque, white, and uneven. Each pleural cavity contained about a pint of clear fluid, with flakes of lymph on the right side. The mucous membrane of the trachea and bronchi was livid, and their cavities were full of thin frothy fluid. The upper parts of both lungs were excessively œdematous: the lower lobe of the right lung was soft and compressed, that of the left less compressed and congested, dark, and heavy, but not pneumonic. Many of the branches of the pulmonary arteries in all parts of both the lungs were blocked up by old coagula of partially discoloured blood. All the rest of the blood in the heart and large vessels was firmly but recently coagulated.

The abdominal cavity contained about three pints of serous fluid. The liver was of ordinary size, pale brown, anæmic, dry and soft. The spleen was large, dark, firm and adherent; at the middle of its outer part there was a mass of soft bright yellow substance. The digestive canal was nearly healthy. The kidneys were small, nodulated and firm; their capsules were adherent; their surfaces mottled and granular, and their cortical substance thin.

In the four classes of cases hitherto mentioned, the coagulation of the blood in the pulmonary arteries may be regarded as a secondary phenomenon; for it usually appears as the consequence, either chiefly or entirely, of the obstruction in the capillaries. Whenever that obstruction is complete, and prevails through the whole of both lungs, death by asphyxia must ensue before the arrested and coagulated blood can undergo any structural changes; and such changes can take place only when the capillary circulation can be carried on in some parts of the lungs, at the same time that in others the blood is stagnant.

There are, no doubt, some other diseases in which under the same essential conditions similar coagula are often formed. I have found them in a case of medullary tumour pressing upon the pulmonary veins; in one of purulent deposits in the lungs coincident with phlebitis after amputation;* and further examination will probably increase the number of diseases in which they will be acknowledged as important complications.

But there are other classes of cases in which the formation of similar coagula appears to be a primary disease, or in which, at least, it cannot be regarded as the result of mere obstruction in the capillaries. Of these I have observed the three following examples :—

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* M. Cruveilhier has figured a case of this kind connected with uterine phlebitis, (*Anatomie Pathologique*, Liv. XI. Pl. II. III.) and similar cases have been observed by most of those who have written on phlebitis; but, probably, there is a great difference between these cases, and those to which this paper refers, and in none of which any signs of inflammation of the coats of the pulmonary artery, or of acute phlebitis in any part of the body, have been found.

CASE IV.

A respectable married woman, 29 years old, and the mother of three children, was admitted into St. Bartholomew's Hospital under the care of Dr. George Burrows on the 5th of May 1843. She had had good health till the previous October, when she had rheumatism, which affected rather severely all the large joints in succession, and lasted for six weeks. After her recovery, she had occasional wandering pains, and three weeks before her admission, she noticed that her eyelids and face began to swell, and her joints, especially her knees and elbows, became swollen and painful, so that on the fourth day of her illness she was obliged to confine herself to bed. On her admission, the swelling of the joints had subsided, but they were stiff and tender, her feet and ancles were slightly œdematous; she was extremely weak and languid, complained of great thirst, and lay on her back, unable to lie on either side. She breathed 32 times in a minute, with some difficulty occasionally. Her pulse was 116, and soft. Her complexion was sallow, with flushed cheeks, dark lines around the eyes, and sharpened features. The lips were dry and pale, the tongue dry, and furred, with a red tip. An abundant hot and acid-smelling perspiration was on the skin, and the urine was scantily but naturally secreted. Auscultation of the heart's sounds detected nothing unnatural.

In the three days after her admission no material change in her condition ensued. Nutritive diet and gentle purgatives and diaphoretics were given, and she appeared slightly improved; but the great depression of the system, the anxiety of expression, and the rapid pulse and respiration, persisted. She perspired profusely, and was very thirsty. For two days the abdomen was distended, tympanitic and rather painful on pressure; on the next day she complained of great tenderness in the right iliac region; and on this day also (May 9th) the præcordial region was found tender, and on auscultation, a distant bellows-sound was heard at the base of the heart accompanying the systole. The state of the joints varied from day to day. On the 10th, the cheeks and forehead were covered with an erysipelatous blush, and numerous red acuminated papulæ had appeared upon the chest, the urine was very irritating, and smelt offensively, sloughs had begun to form upon the sacrum, and the weakness and depression were increased. On the morning of the 11th, after passing a comfortable night, she was suddenly seized with a sensation of great tightness in the præcordial region, violent palpitation of the heart, and the most urgent dyspnœa. The attack lasted for an hour, and then she returned to nearly the same state as she had been in before it; but from this time she sank more rapidly. Upon auscultation, no respiratory murmur was heard below the right breast, and it was dull on percussion; the habitual dyspnœa became greater, the sloughs on the nates and sacrum extended, the abdomen became again tympanitic and tender, especially about the right iliac region, she vomited several times, and died in the afternoon of the 13th.

The history just read is taken from Dr. George Burrows's case-book, and he has added this note, which will serve to show what was the general character of the very anomalous symptoms which the case presented:—"The symptoms were very obscure at the time of the patient's admission. I regarded the case as one of rheumatism occurring in a woman of feeble constitution. Upon the appearance of the remarkable symptoms on the morning of the 11th of May I formed the opinion that she was attacked with passive pneumonia of the right lung, and I considered it highly probable that the constitution was suffering under the depressing effects of the typhus-poison, for there were several severe cases of typhus fever in the beds adjacent to that of the patient at this time."

On the examination 40 hours after death, I found all the blood which appeared in the ordinary course of the dissection either fluid or coagulated in soft black masses. The pericardium contained half an ounce of fluid; there were a few slender adhesions between the trunks of the large vessels, and on the surface of the heart were two white spots. The heart was of ordinary size, and its parts well-proportioned; but its tissue was rather weak and pale. The valves on its right side were thin, clear and healthy; those on the left side were a little thickened and opaque, but quite pliant. In the coats of the aorta were a few scattered fatty deposits; those of the pulmonary artery were healthy. Each pleural sac contained a small quantity of clear fluid, and at the apex of each lung there was an adhesion with a few dry and shrivelled tubercles beneath it. The lower lobes of both lungs were slightly but generally œdematous, and gorged with blood. The upper lobes, with the exception of the small groups of old tubercles, were healthy. The trachea and bronchi were also healthy, and contained a small quantity of mucus. Nearly half the branches of the pulmonary artery, from those of the second order, to those of the fifth and sixth (and probably to yet smaller branches), were blocked up by old coagula of blood. These were cylindrical, soft and grumous, and in colour were a mixture of pale pink and dirty greyish white, with spots and blotches of deep crimson. They were not more numerous in one lung than in the other, and were irregularly scattered through all parts of each. They did not quite fill the vessels which contained them, but at various parts they adhered closely to the walls. The trunk of the pulmonary artery, and many of the branches which did not contain coagula of the kind just described, contained fluid and softly clotted black blood. The abdominal and pelvic organs were healthy in their structure, but very pale, and weak.

CASE V.

A widow 70 years old, thin and emaciated, was admitted under Dr. George Burrows on the 28th of December 1843. She had always had good health, with the exception of a slight cough during the last three winters. Five weeks before her admission she was attacked by a bad *cold*, with some cough, but no pain in the chest, or dyspnœa. A fortnight after this, her legs began to swell. When admitted, she had a sallow countenance, with livid lips, a very irregular and feeble pulse, beating nearly 100 times in a minute, and was breathing laboriously 32 times in a minute. She had no pain, but a slight degree of tightness in the chest, and expectorated a little frothy tenacious fluid. The lower extremities were œdematous, and there were some small abrasions, with apparent sloughing, of the cuticle of the legs. On the day after her admission, she seemed to improve a little; but next day she sank rapidly, and Dr. Burrows " remarked an extreme hurry of the circulation, with feebleness of the pulse and great prostration of strength, very similar to those observed in the preceding case."

In the examination 36 hours after death, I found the lungs of ordinary size, but deeply wrinkled, when collapsed. There were a few scattered adhesions on their anterior surfaces. Their tissue was generally light and crepitant, and in a few parts slightly œdematous; the air-cells were of ordinary size, except about the lower and anterior margins of the lobes, where there was a moderate degree of emphysema. In a few parts the pulmonary tissue was compressed; and at the anterior and lower border of the left lung was a small patch of compact pulmonary apoplexy, with some diffused apoplexy around it. The bronchi were of ordinary size; their mucous membrane thin, pale, and firm; their tubes full of thick semi-transparent viscid mucus. In each lung, one of the superior and one of the inferior main branches of the pulmonary artery were blocked up by a large, firm, mottled, clot of blood, which, from itself as a trunk, sent branches into two or more of the next order of branches of the artery. The colours of the clots were black, deep-crimson, rusty, pink and yellowish, in various irregularly mingled shades; they were moderately firm, of nearly uniform consistence throughout, and capable of being rubbed into a thick grumous substance; they adhered so firmly by parts of their surfaces to the adjacent walls of the vessels, that they could not be smoothly removed. The branches of the largest clots did not extend far into the arteries, but terminated abruptly in the arterial ramifications immediately proceeding from those in which they lay. But beyond their terminations, many smaller branches of the pulmonary arteries in all parts of the lungs contained short, firm, dry, mottled, and adherent clots, variously coloured. None of these was long or much ramified; none was continued through more than two branches; and many of them were not more than half or three-quarters of an inch long; some were even shorter, and lay like bits of larger clots upon the walls of the vessels. They had all the same characters as those already described; and the portions of lung adjacent to and beyond them, were not different from the rest.

Moreover, in several of the larger branches of the pulmonary artery, there were appearances of clots of blood formed like those just described, and having been still further altered and organized. These were pale, semi-transparent, soft, and flattened narrow bands, attached firmly to the walls of the artery, and presenting all the characters of the organized clots which I have sometimes seen adhering to the walls of divided arteries. They were from one quarter of an inch to an inch in length, and about one-tenth of an inch wide; a few were fixed, in their whole length, to the walls of the artery, but most of them by their ends only, so that a probe could be passed under them. Among the clots there were all gradations, between those last and those first described; and in one instance, one of the largest of the more recent clots was continuous, with a flat, semi-transparent, and adherent portion, like those which had existed for the longest time. (See Plate III. fig. 3.)

The branches of the pulmonary arteries which were thus obstructed, were smooth and polished internally, but in many places had fine, scattered, and grouped grains of yellow deposit in their coats. They were all of natural size; and the pulmonary veins were healthy.

The cavities of the right side of the heart were considerably dilated and hypertrophied. Both of them were distended by soft and uniformly black coagulum, slightly adhering to their walls; and in the appendix of the right auricle the coagulum had become firm, mottled, and closely adherent, somewhat like those in the pulmonary arteries. The left auricle and ventricle were also dilated and hypertrophied, but in a less degree than the right; they contained a smaller quantity of similar soft black coagulum. The tricuspid valve was healthy; the pulmonary valves were large, and in small patches, opaque, but thin and pliant; the mitral valve was slightly thickened, and had several spots of soft yellow substance beneath its ventricular surface; the aortic valves were also irregularly thickened and opaque, with enlarged corpora Arantii, bearing small warty growths; but both they and the mitral valves might be deemed able to discharge their functions. The aorta was large, with numerous yellow deposits in its coats.

The digestive canal was healthy. The liver was small, tough, contracted, and granulated, and a great part of its surface was covered by long adhesions. The gall-bladder was full of calculi. The kidneys were small and somewhat granulated, with adherent capsules, and numerous cysts full of transparent fluid. The uterus prolapsed beyond the labia. The large veins and the systemic arteries, as far as they were examined, were healthy.

CASE VI.

A girl, twenty years old, who had long lived in the miseries of poverty and prostitution, was admitted under Mr. Stanley, for gonorrhœa, about seven weeks before her death. She was pale, haggard, and scarcely able to walk. She had a slight cough, without expectoration, occasional anasarca of the lower extremities, and violent palpitation, with increased impulse of the heart. She had been subject to sudden fainting fits. In bed, she lay constantly on her back, as if in a state of great exhaustion, but she did not appear to have difficulty in breathing. Her pulse was rapid and feeble. A loud bellows-murmur accompanied and terminated the first sound of the heart; it was heard over the whole chest, but most distinctly at the base of the heart, and in a line extending from the middle of the base upwards, and towards the left shoulder. The same sound was heard also behind the chest, as well as in front. She had not menstruated regularly for four months; her urine was alkaline and albuminous; and on her admission she had some ascites and œdema of the legs. During the first month of her stay in the hospital, her condition appeared slowly improving; but then effusion into the chest, and signs of pleuro-pneumonia came on, and she soon died.

The pericardium contained about three ounces of clear fluid. The blood in the heart and large vessels was firmly coagulated and separated in dark clots with superjacent *buffy coats* of transparent fibrine. The right auricle was somewhat dilated and hypertrophied; the right ventricle was so in a much greater degree, and there were several deposits of a firm, pale, yellow substance upon, and beneath its lining membrane, near the orifice of the pulmonary artery. The left auricle and ventricle were healthy. The tricuspid valve was healthy. The pulmonary valves were only two in number; they were thickened and opaque, and had on their free borders and adjacent surfaces large growths of brownish-yellow, soft, fibrine-like substance, which firmly adhered to them, and which had in their interior small grains of earthy substance. The largest of these growths or deposits was of an irregularly triangular form, having its base attached to the largest and posterior of the valves, and its apex reaching to the opposite wall of the artery. Behind the valves, and on the lining membrane of the trunk and division of the pulmonary artery, there were seven or eight warty growths, from two to four lines broad and a line and a half high, composed of a pale yellow and nearly transparent substance, like that of the deposits within the ventricle, but firmer and more firmly adherent. Behind the largest of the valves there was a distinct ulcer of the lining membrane of the artery, nearly half an inch in diameter, with a rough uneven base and shreddy margins; and a smaller ulcer of the same kind was situated at the angle of bifurcation of the artery. The mitral and aortic valves were healthy, and the aorta was slightly yellow-spotted.

The right pleura had extensive adhesions; the remains of its cavity contained six ounces of clear yellow fluid. The left pleura contained a pint of serous fluid with flakes of lymph, and had an abundance of recent vascular lymph upon its surfaces. The trachea and bronchi were healthy and contained some tough mucus. In both lungs the upper lobes were pale, dry, light, and slightly emphysematous. In the lower lobes of both, all the pulmonary arteries, from the origin of the main branch to the most distant branches that I traced, were full of old fibrinous coagula, which branched in correspondence with the vessels in which they lay. The largest parts of the coagula were pale yellow, dry, very firm, laminated and closely adherent to nearly the whole circumference of the arterial walls, which when cleared were found dark, rough, and thin. The smaller branches of the coagula had exactly the same characters, except that they were darker. In the lower lobes of the lungs there were also about twenty firm and compact masses of *pulmonary apoplexy* of very irregular form, and measuring from half-an-inch to two inches in diameter. The circumferences of them all were of a deep and dark crimson colour; and of those which were just beneath the pleura the external surfaces had the same ordinary colour of pulmonary apoplexy. But in their interiors the blood was in various degrees decolorized, and their sections presented different shades of a pale greyish-yellow colour. The parts of the lungs adjacent to them were rather firmer than the rest, and œdematous; the intervening parts were healthy.

The abdomen contained about a pint of yellow serum, with long strings of soft lymph. The liver was pale; but otherwise both it and the gall-bladder were healthy. The spleen was large, firm, and adherent to the abdominal walls; it was dark, and there were, both in it and on its surface, many still darker spots, like ecchymoses. The renal capsules were large, firm, and fleshy. On the mucous membrane of the stomach there were traces of three or four small superficial cicatrices; but in other respects it was healthy. In the ileum there were several apparently old, broad, transverse bands of irregular ulceration, covered by uneven lymph, but vascular. The kidneys were healthy in texture, but pale. There were several superficial ulcers in the upper part of the vagina.

There is so little similarity in the symptoms presented by these three patients, that I cannot draw any certain deduction concerning the real nature of their diseases. I will therefore only offer these few observations on them.

In none of the cases (except the last) is there any indication that the coagulation of the blood was the consequence of disease of the pulmonary arteries. In some of them, fine grains of yellow fatty deposit lay beneath the anterior lining membrane; and I will take this occasion to state, that it is erroneous to suppose that this disease is very rare in the pulmonary arteries. It is very rarely seen in the trunk of the artery; but in the branches of the second, third, and further orders, it occurs to some extent in half the persons who die beyond the middle age. It is not always associated with a greater degree of the same disease in the aortic system; but it rarely attains to a state materially affecting the functions of the artery, and is rarely complicated by the deposition of earthy matter. However, there is no reason to believe that any connection exists between the coagulation of the blood in the cavities of the arteries and this disease in their coats.

The clots in the last case were distinguished by being laminated, as if formed by the deposition of successive layers from the wall towards the axis of the artery. In all the others, the particles of the clots were irregularly arranged; they were throughout various in both colour and consistence. Some were partially softened; indicating, I suppose, that the blood had died before the general death of the body; others, in which the blood had, probably, become further organized, had acquired firm adhesions to the walls of the vessels; and in the fifth case, it was evident that the clots were fully organized, and had acquired organic connections with the adjacent parts. In this respect the case is peculiarly interesting, for it proves that blood, though coagulated in circumstances of disease, is yet capable of further organization, when placed in conditions compatible with the maintenance of its life; and further, that the coagulation of the blood in the large pulmonary arteries, is not necessarily either the cause or the attendant of fatal disease; for several weeks must have been occupied in effecting the complete organization to which these clots had attained. However, it must be remarked as a peculiar character of this case, that the clots were not generally long and branching, but were in small bits, many of which occupied only a part of the calibre of the artery.

The last case related, is made the more remarkable by the occurrence of so rare an affection as disease of the valves and trunk of the pulmonary artery. In its general characters, it much resembles the cases related by Dr. Bright,* of obstructions of the veins by fibrinous coagula formed during life, in females debilitated from various circumstances. There is not, indeed, any mention of coagula in the pulmonary arteries in those cases; nor were there any coagula in the veins in that which I have related. Yet they are all, in many respects, similar; and one of the observations published by M. Baron,† supplies the very fact which is necessary to establish the connection between them; for in it the circumstances during life were very like those observed in these cases, and after death old fibrinous coagula were found in both the veins and the pulmonary artery.

In conclusion, though it is not connected with the diseases to which this paper especially refers, I would point to the fact of there being only two valves in the pulmonary artery, in the case last related. It has never, I believe, been noticed (though there need be no doubt about the fact), that in the majority of cases in which only two valves have been found in the aorta or pulmonary artery, those valves have been diseased, and often extremely diseased. This fact is very important; for it affords evidence (which is confirmed by several other observations), that parts which, from defective or erroneous development, are wrongly shaped, are often, at the same time, imperfect in their tissue, and are therefore very liable to disease; and it is thus, moreover, a striking example of those congenital defects of the composition of the textures, which, though they are little studied, are much more common and important than the more obvious congenital defects of shape.

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* Reports of Medical Cases, vol. ii., p. 63.

† L. c. p. 18.

ON THE

COMPOSITION OF THE MECONIUM,

AND OF THE

VERNIX CASEOSA OR LUBRICATING MATTER OF THE NEW-BORN INFANT.

By JOHN DAVY, M.D., F.R.S. Lond. & Ed.

Communicated by THOMAS HODGKIN, M.D.

READ MARCH 12th, 1844.

The microscopical character of meconium is very distinctive, and well displays its compound nature. It may be examined advantageously either mixed with water, or in a saturated solution of common salt; or merely compressed between two plates of glass. Using either method, its appearance is much the same,—it exhibits a confused mixture, of globules, plates, and molecules.

The globules about $\frac{1}{3000}$th of an inch in diameter, are very abundant, and form a principal part of the whole. Judging from their form and size, their insolubility in water and alcohol, they may be inferred to consist chiefly of mucus.

The plates, which are tolerably abundant, are of two kinds. One kind is of irregular form, somewhat granular, varying in size from about $\frac{1}{2000}$ to $\frac{1}{1000}$ of an inch in diameter, insoluble in water, alcohol, whether hot or cold, and the dilute acids and alkalies, after the manner of epithelium scales; which I believe them to be. The other kind are of a regular form, chiefly rhomboidal, of great thinness, and perfect transparency, insoluble in water and acids and in cold alcohol, but readily soluble in hot;—properties sufficiently indicative of cholesterine.

The molecules vary in size from $\frac{1}{8000}$ to $\frac{1}{20000}$ of an inch in diameter;—and, as they are insoluble in water, and in most part soluble in an alkaline ley, they may be considered as consisting chiefly of fatty matter. They constitute a very small part of the whole.

Besides these ingredients admitting of being distinguished by the microscope, to which the meconium owes its thick consistency and viscid nature, there is another portion, the soluble part, with which they are imbued, and from which the mass derives its colour and taste, and probably its power of resisting putrefaction, and which seems identical with the colouring and sapid matter of bile, being soluble in water and alcohol.*

The specific gravity of meconium, deprived of air, exceeds that of water.* It sinks in a saturated solution of common salt of the sp. gr. 1148. It may be mentioned in confirmation of what has been already stated, that this mixture of meconium and brine affords, after standing a time, a kind of mechanical analysis or separation of its ingredients. The mucus globules and epithelium scales, dyed of a dark green by the colouring matter, find their place of rest at the bottom, whilst in the supernatant fluid, slightly turbid, and of a bright greenish yellow hue, numerous plates of cholesterine, and a smaller number of fatty globules and molecules, are found suspended.

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* This property of meconium is remarkable. After more than three months, a portion put by in a bottle containing a good deal of air, closed to prevent the drying of the substance, was found unaltered in colour, and presenting the same appearance under the microscope as when first examined; the only perceptible difference was, that its upper surface was covered with a mould, or mucor, like that of cheese, formed of connected globules, each about $\frac{1}{5000}$th of an inch in diameter.

The quantities of meconium which I have obtained have been too small to admit of accurate analysis, and the determination of the proportions of the ingredients of any one specimen. It may be briefly mentioned, that every specimen that I have examined (some voided just after birth, others taken from the intestines of still-born children) has been very similar, and, in accordance with the results of the microscopical examination, composed chiefly of mucus globules and epithelium scales, and of biliary matter, containing, besides the colouring and sapid matter of the bile, a small portion of cholesterine, of margarine and oleine, with a little free acid, probably the carbonic, judging from the want of effects of nitrate of silver in precipitating it, and from the circumstance that the redness imparted to litmus paper was removed by heat.

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* It is readily deprived of air, by crushing it under water by the pestle in a mortar, more readily than by the air-pump, owing to its tenacity; in this respect resembling cork, which, composed of elastic cells, floats *in vacuo* on water many months, and yet immediately sinks when forcibly compressed, using small portions.

In one instance—a specimen obtained from a healthy child immediately after birth—the proportion of water was determined;—of matter soluble in hot alcohol, separating on cooling, chiefly cholesterine and margarine; of matter soluble in cold alcohol, chiefly oleine, and the colouring and sapid matter of the bile; and of matter insoluble in this fluid, whether hot or cold, chiefly epithelium scales and mucus: the results per cent. were about as follow:—

23·6	mucus and epithelium scales.
·7	cholesterine and margarine.
3·0	colouring and sapid matter of bile and oleine.
72·7	water.
100·0	

These proportions, I believe, may be considered pretty correct; that of the colouring matter indeed is a little too low, owing to the difficulty there is in extracting it from the mucus and epithelium scales, with which it appears to combine as a dye, staining them permanently.

A portion of the same meconium was incinerated. It burnt after becoming semifluid, with a bright flame, and left ·69 per cent. of reddish ash, chiefly peroxide of iron and magnesia, with a trace of phosphate of lime and common salt: the magnesia seemed to be the predominant ingredient and uncombined.

The character of the vernix caseosa under the microscope, is not less distinctive than that of meconium. Being immiscible with water, it can only be well examined by using the compressor: thus seen, compressed between two surfaces of glass, it is found to be composed of granular plates and molecules; the plates constituting the principal part, and producing a tessellated appearance, not unlike the representation of an old Roman pavement, or rude cyclopian wall. The plates have the properties of epithelium scales, the granules, those of fatty matter, as also the molecules. The plates are insoluble both in weak acids and alkaline leys and in cold and hot alcohol; are of irregular form, varying in size from about $\frac{1}{666}$ to $\frac{1}{1000}$ of an inch in diameter, and very thin. Their granular character is greatly diminished, by the action both of a solution of potassa, and by boiling alcohol after drying, by which also the molecules are dissolved.

The vernix caseosa is apparently lighter than water, on which it floats: but this is owing to the air entangled in it, as is proved by subjecting it, immersed in alcohol, to the action of the air-pump, after which it sinks in water, at 60° Fahr. A specimen thus treated was found to be of the sp. gr. 10039, and it probably still contained a little air,—it being extremely difficult to exhaust the whole from a substance so constituted, of which proof is afforded by the circumstance that if the trial is made with the air-pump, using water instead of alcohol, although a considerable portion of air is exhausted, as is indicated by the ebullition produced, yet sufficient remains to keep it bouyant. Proof of the same is afforded by boiling it in water: even after several hours' boiling, the whole did not sink. It may be worthy of remark, in confirmation of its specific gravity being only a very little above that of water, that towards the boiling point most of it rises towards the surface, (its specific gravity diminishing with elevation of temperature like that of fatty matter,) and again subsides as the water cools down to the temperature of the air.

From the circumstance also of the epithelium scales being coated with, or enveloped in fatty matter, the vernix caseosa is retentive in a remarkable degree, of the water which forms a part of it. It required ten hours' exposure over a steam bath, to expel from eight grains the whole of the water belonging to it, when it was reduced to 1·77 grain.

Of a butteraceous consistence in its ordinary state at a temperature of 60°, it hardens on reduction of temperature, and becomes almost semifluid when its temperature is raised, as to 100°,—admirably adapting it for a lubricating substance in parturition. But when the whole of its water is expelled, then even at the temperature 212° it loses its quality of lubricity, and is converted into a hard mass of a greasy feel,—the dried epithelium scales, doubtless, absorbing the portion of fatty matter, in the same manner as flour absorbs the butter or lard mixed with it, forming when baked a crisp paste. When thoroughly dried, the fatty matter which it contains is readily extracted by the action of boiling alcohol, of sp. gr. ·838. From what is witnessed when thus treated, it may be inferred, that the fatty matter is of two kinds, one being deposited on the cooling of the alcohol, the other being retained in solution, the former having the character of margarine, the latter of oleine.

A single specimen of the lubricating matter, of great purity, taken from a healthy infant immediately after birth, subjected to analysis, with the intent of determining the proportion only of the principal ingredients, was found to consist of—

13·25	epithelium plates.
5·75	oleine.
3·13	margarine.
77·37	water.
100·00	

A portion of the same was incinerated: it burnt with a bright flame, and left a very small quantity of white ash, hardly $\frac{1}{50}$th of a grain, although 40 grs. was the quantity consumed, weighed before drying. This ash, in a drop of dilute muriatic acid, dissolved, emitting a distinct smell of sulphuretted hydrogen; and the solution was clouded by adding a little ammonia, indicating the presence of a minute portion of phosphate of lime and sulphur—the latter in union probably with lime or potash.

Theoretically considered, as regards the origin of the two substances treated of, the preceding results seem to point out distinctly that both are excretions, the meconium chiefly derived from the liver, as I believe is commonly admitted by physiologists,—and the lubricating matter from the skin.

M. Raspail is of opinion, that a portion of the meconium consists of intestinal villi,— founding his conclusion on microscopical observations.* I have sought in vain for the appearances which he describes;—the utmost I have seen has been a solitary filament now and then, mixed with the plates: often indeed there has been an appearance of a greater number, but these on careful inspection have proved to be the margins of plates of cholesterine, from their position having a linear or filamentous appearance.

Vauquelin and Buniva after examining the vernix caseosa, were led to infer that it is not an excretion from the infant, but a deposit on its surface of a peculiar nature from the liquor amnii, derived from its albuminous part by a certain change.† This view, I apprehend, cannot now be sustained, and does not require to be controverted. Bichat saw the unreasonableness of it, and rejected it merely from the circumstance that no such deposit is found on the umbilical cord, or on the inner surface of the amnios, and came to the conclusion which seems most just, that it is derived from the skin of the fœtus, and is a secretion similar to that which takes place after birth in many parts of the cutaneous system.*

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* Nouveau Système de Chimie Organique, ii. 466.

† Ann. de Chim. xxxiii. 274.

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* Anatomie descriptive, v. 393.

ON

PARACENTESIS THORACIS

AS A CURATIVE MEASURE IN EMPYEMA AND INFLAMMATORY HYDROTHORAX.

By HAMILTON ROE, M.D., Oxon.,

SENIOR PHYSICIAN TO THE WESTMINSTER HOSPITAL, AND PHYSICIAN TO THE HOSPITAL FOR DISEASES OF THE CHEST.

READ APRIL 23rd, 1844.

THE opinion very generally prevails amongst the most eminent members of our profession, that the operation of tapping the chest is one which affords but little hope of curing either empyema or hydrothorax; and, therefore, that it should never be performed until the difficulty of breathing, caused by the pressure of the fluid effused into the pleural cavity, becomes so urgent as to threaten immediate death. The reasons assigned for this opinion are—

First—that the re-accumulation of fluid will commence immediately after its evacuation has been effected, and can be prevented by the action of the absorbents only; and, therefore, that we ought to rely upon them, in the first instance, for its removal.

Secondly—that the operation itself is attended with very considerable danger. And, Thirdly—that the majority of those cases in which the operation has been performed, has terminated fatally.

The names of Boyer, Dupuytren, Sir Astley Cooper, Laennec, Townsend, Gendrin, and Stokes, are found amongst those who speak unfavourably of paracentesis thoracis, and as no modern physician or surgeon has recommended it as a curative measure, it cannot excite surprise that it should have fallen, as it has done, into very general disrepute, inasmuch as the judgment of a large portion of the profession must, in the absence of personal experience, be influenced by the opinions of men of such high standing. To ascertain how far the objections to it were derived from the results which followed its performance, I collected all the cases of this operation which had been published in the English language, between the years 1812 and 1832 inclusive, presuming that the knowledge of auscultation and percussion had by that time become so general, as to ensure tolerable accuracy of diagnosis, and I found that the recoveries were to the deaths, in the proportion of twenty-eight to eleven. These cases are arranged in a tabular form, and certain particulars are stated in separate columns, to enable the Society to form a judgment of the causes of the failure or success of the operation.

A TABLE OF THE CASES RECORDED IN WHICH PARACENTESIS THORACIS WAS PERFORMED.

No.	Names of Patients.	Medical Attendants.	Age.	Date of Effusion.	Operation, how performed.	No. of Operations.	Quantity and quality of fluid.	Results.	Reference.
1	Mlle. Chatellier	Dr. Fretau	9	3 weeks	Not stated	1	Pus, quantity not stated—	Cured	New Med. & Phys. Journal 1812
2	Pedro Berthelemi	Ditto	28	Not stated	Incision	1	Hydatids	Cured	Ditto 1812
3	———	M. Tourtuel	22	16 days	Lancet, wound left open	1	Pus, 14 plates	Cured	Ditto 1814
4	T. B.	Mr. Robertson, Naval Surgeon	—	9 weeks	Not stated	1	Pus, 4 to 6 oz. daily	Cured	Ditto 1814
5	———	Mr. James	43	3 months	Bistoury	1	Serum, 1 pint and air	Cured	Lond.Med.&Phys.Journal 1815
6	———	Dr. Archer	41	3 years	Trochar	1	Serum, 11 pints	Cured	Ditto 1819
7	D. A.	Mr. Henderson	32	16 weeks	Wound closed 1st time, but kept open with sponge 2nd time	3	Sero-purulent, 4 pints 8 pints 5 pints	Died	Edin. Med. Journal . 1820
8	———	Dr. Hastings, of Odessa	45	Not stated	Lancet, wound open	1	Pus, ½-pint	Cured	Med. and Phys. Journal 1820
9	Male	Dr. Novarra	33	4 months	Seton inserted	1	Pus, 12 pints	Cured	Medical Repository . 1820
10	Female	Mons. Anguet	30	Not stated	Not stated	2	Pus, 5 pints 1 pint	Cured	Ditto . . . 1823
11	R. Keener	Mr. Betty	25	5 weeks	Lancet and scalpel with canula	2	Serum, 9 pints—58 pints in 9 weeks	Cured	Ditto 1823
12	Jean J. Lefevre	M. Dupuytren	33	9 months	Trochar	1	Serum, 3 pints	Died, Pleura distended with air	Med.-Chirurgical Rev. 1823
13	An Ecclesiastic	Mons. Moran	22	Not stated	Trochar	2	5 pints 1 pint	Cured	Ditto 1825
14	A Negro	Dr. Jackson, of Philadelphia	—	Not stated	Not stated	1	Serum, 4 pints	Died	Ditto 1825
15	———	Mons. Martinet	—	Not stated	Not stated	several	———	Cured	Ditto 1825
16	W. Falconer	Mr. Donaldson	—	6 weeks	Incision with tent	2	Pus, 8 soup plates 5 ditto In all 22½ lbs.	Cured	Journ. of Med. Science 1826
17	W. Osborne	Dr. Hastings	23	Uncertain	———	1	Pus, 7 pints	Died	Medico-Chirurg. Rev. . 1826
18	R. A.	Ditto	17	16 weeks	Incision	1	Sero-purulent, 2 qts.	Died	Ditto 1826

19	J. Bond	Ditto	25	5 weeks	Incision	1	Sero-purulent, with blood, 1½ pint	Cured	Ditto 1826
20	——	Ditto	—	——	——	1	Sero-purulent, 4 pints	Cured	Ditto 1826
21	A patient had 2 operations with an interval of 22 years	——	—	——	——	2	——	Cured	Horne's Archives . 1826
22	——	Mr. Stevenson	—	——	——	—	6½ pints	Cured	Medico-Chirurg. Rev. . 1826
23	Fanny Cockayne	Mr. Jowett	9½	4 weeks	Incision	1	Pus, 3 pints	Cured	Ditto 1826
24	Susan Smith	Dr. Pitcairn	11½	6 months	Flat trochar	4	Pus, 3 pints 18 oz. 3½ pints 3½ pints	Cured, Chest contracted	Ditto 1827
25	Patient of Guy's Hospital	——	—	Long time	Puncture	1	Pus, 206 oz. in 16 days	Died	Ditto 1827
26	——	Mr. Huggins	27	3½ months	Incision, wound open	1	Sero-purulent, 7 pints	Cured	Ditto 1827
27	Soldier	Baron Larrey	29	3 months	Incision	1	Sero-sanguinolent, 15 pints	Died	Ditto 1828
28	——	Dr. Guerard	—	Some days	——	1	Large quantity	Cured	Ditto 1828
29	D. Lyon	Mons. Roux	28	23 days	Trochar	1	Pus, 12 oz.	Died	Lancet . . . 1828
30	P. Brown	Mr. Cowan	43	9 months	Abscess lancet	1	Pus, 7 lb.	Died, Lung size of 2 fists	Glasgow Med. Journal 1829
31	W. Smith	Dr. Hewett	23	4 weeks	Tube left in wound	1	Pus, 4 oz.	Died	Medico-Chirurg. Rev. . 1829
32	Calvin Cook	Dr. Merewether	—	——	Canula left in wound	1	Pus, 2 gallons	Cured	North American Med. and Surgical Journal 1829
33	Peter Williams	Dr. Jackson	22	28 days	——	1	Bloody serum and pus, 3 pints, 1 gill	Cured	Ditto 1830
34	Thomas Booth	——	62	8 months	Lancet	1	Hydatids	Cured	Medico-Chirurg. Rev. . 1829
35	Jane Rankin	Dr. Auchincloss	18	3 months	Flat trochar	1	Pus, 6 pints	Died, Lung compressed	Glasgow Med. Journal 1830
36	John Berryman	Mr. Mayo	15	3 weeks	Trochar	1	Pus, 18 oz.	Cured	Lond.Med.&Phys.Journal 1831
37	Dr. Wendelstaedt	——	23	7 years	——	1	Pus, ½-quart ⅓-quart 2 oz. daily	Cured	Edin. Med. Journal . 1831
38	Miss Jesse Campbell	Mr. Cleland	7	7 weeks	Lancet. Tent for a few hours.	1	Pus, 8 oz. Continued to discharge	Cured, with contraction	Ditto 1831
39	— Richardson	——	22	4 months	Not stated	1	Pus, 8 pints	Cured	Medical Gazette . . 1832

N. B.—In not one of these 39 cases did the operation prove fatal, although it was performed in various ways. It is true that M. Dupuytren's patient (12) died of suffocation the day after his chest had been tapped, evidently from air accumulating in the pleura; but this danger might have been obviated, as will be seen hereafter. Of 39 patients upon whom Paracentesis was performed, 11 only died. Of these, 20 were cases of Empyema, of which 14 were cured and 6 died; 13 were of Hydrothorax, of which 8 were cured and 5 died: 2 had Hydatids—both were cured; and 4 were cases in which the quality of the fluid is not stated: they

Encouraged by the number of recoveries exhibited in the foregoing Table, and believing that many persons might be saved by paracentesis thoracis who were almost sure to die unless it were performed, I tapped all the cases of empyema and hydrothorax which fell under my care, in which the means adopted for the cure of these diseases did not after a few weeks produce a sensible diminution of the effused fluid, and found the success attendant upon this practice to exceed my most sanguine expectations. Several of my friends adopted this mode of treating similar cases with equal success; and I am now prepared to lay before the Society twenty-four cases, the whole number which has come within my immediate knowledge since the year 1833, in which tapping the chest was performed, and to show from them that this operation is as free from danger as any other which is performed on the human body, that most of the evil consequences supposed to attend it are more imaginary than real, that it is generally successful when employed at an early stage of the diseases under consideration, and that the chief cause of its failure is its being postponed until too late a period. But, before I lay these cases before the Society, I beg to make a few observations in reply to the principal arguments usually brought forward against the operation. Those which have already been mentioned can scarcely be said to require any serious refutation, for every day's experience shows that the absorbents fail to remove a large quantity of effused fluid from serous cavities, and yet effectually prevent its re-accumulation. Not a single case can, I believe, be found on record in which the operation proved dangerous, except when it was performed upon the healthy side, and the Tables contained in this paper, as well as the reports given by Sprengel, clearly prove that a large majority of the patients upon whom paracentesis has been performed have recovered.

It is also objected to tapping, that it frequently induces dangerous syncope; that it is of little use in peritoneal effusions, and therefore from analogy cannot avail more in effusions into the pleura; and that, as it does not cure the inflammation which causes the morbid and excessive secretion, no object is attained by merely removing the fluid. To these arguments I reply, that in none of the cases recorded in this paper did the abstraction of several pints of fluid at one time induce even a tendency to syncope; that paracentesis often cures peritoneal effusions, and therefore from analogy we may expect it to be equally successful in pleuritic effusions; and, that tapping is not recommended for the removal of the fluid until after the inflammation has been subdued by other means.

But there are other arguments, which constitute in the minds of many practitioners very strong objections to the operation; and which therefore require to be noticed. For example, it is said that the admission of air during the operation is attended with danger, and frequently renders it unsuccessful.

This objection derives its importance from the high character of the men by whom it is held, and would, if it were well founded, constitute a very strong argument indeed against tapping the chest, because it is impossible without the assistance of some valvular apparatus to prevent the ingress of air during the operation, inasmuch as the patient begins to cough very violently as soon as a certain quantity of fluid has been withdrawn, and his rapid and forced inspirations cause the air to rush through the canula into the chest, however watchful the operator may be to prevent it. But it appears difficult to me to conceive what peculiar cases could have induced belief in such a source of danger; for in every case which has fallen under my observation a considerable quantity of air entered into the pleura during the operation, and in some of them so freely as to excite all the physical signs of pneumothorax, but in none of them did it produce any permanently evil effect, a few hours being sufficient for its spontaneous removal: in one instance only did it cause even temporary inconvenience. Now when it is considered that out of twenty-four cases, nine of which were instances of purulent effusion, in which *à fortiori* the deleterious action of air ought to have been especially manifested, no mischief followed, it appears but fair to presume that this danger has been much exaggerated. The supposition that the action of the air may militate against the recovery of the patient by its pressure upon the lung, appears to carry with it, as an argument against paracentesis, its own refutation: for no greater pressure can be exerted by the air which is admitted during the operation than had been previously caused by the accumulated fluid;

and as the former can only interfere with the expansion of the lung during the time required for its absorption, and the experiments of Speiss* have fully proved that air introduced into the pleura is invariably removed in a few days, it follows that its admission must be less adverse to the recovery of the patient than the continued pressure of the fluid during the longer period which it would be likely to remain unabsorbed. In those very rare cases in which the air admitted during the operation is not speedily absorbed, but produces dyspnœa, it is very easy to pump it out with an ordinary syringe, and thus put an end to the mischief. This was done for Silas Hann,† the only one I ever met with where the air did not in a short time disappear spontaneously from the pleuræ.

The last objection I shall notice is, that the operation is unnecessary: this is one which must be made by all those who hold or adopt the opinion advanced in a posthumous essay of the late Dr. Hope, viz. that all cases of empyema really curable, are curable without paracentesis.‡ This conclusion appears to have been drawn from the results of thirty-five cases of that disease, recorded in the paper just alluded to, in which the exhibition of mercury, continued until the patients had been brought completely under its influence, was followed by the removal of the fluid. Now without calling in question the existence of empyema in all these cases, or seeking for the proofs of its presence, I would ask, before I proceed to combat the objection, what is meant by the cure of empyema? If it be the simple removal of the fluid, I am not inclined to dispute the *possibility* of effecting so much by the power of mercury, for I have had many cases in which the symptoms of fluid in the chest have disappeared under its action; but this is not necessarily a cure; for the lung which has been compressed by the fluid is often left so altered in its structure, that it never again can perform its healthy function. But if it be meant, that in all curable cases of empyema, mercury, exhibited in the manner prescribed, will not only cause the absorption of the fluid, but the restoration of the lung to health, the experience I have had of the effect of that medicine in this disease, precludes me from subscribing to this assertion. I have had many cases in which it has failed to cause even the absorption of the fluid, and very many in which after effecting its removal, it left the lung in a condition very different from that of health; in a majority of the cases recorded in this paper, mercury had been freely exhibited before the patients came under my care; in several it was given by my own direction; in three, ptyalism was produced and kept up, but nevertheless the fluid was not absorbed. To justify the assertion that all curable cases of empyema may be cured by mercury, without paracentesis, or, in other words, that no case of empyema which cannot be cured by mercury is curable by the operation in question, it would not be sufficient to show that paracentesis had not succeeded in curing any case where mercury had failed, unless it were also shown that at the time of its performance no such changes had taken place in any of the thoracic viscera, as rendered a cure impossible. Indeed, I am unable to conceive how such an assertion could be proved, for even if the whole of those thirty-five cases were perfectly cured, that is, not only that the fluid was removed, but that the lungs were restored to health and soundness—which is not alleged to have been the case—the point asserted would even then be rendered probable only, because other cases might still occur, in which mercury would fail; but it is not stated that these cases were so perfectly cured, and in the absence of evidence, or even any statement to that effect, we can only receive this assertion as the expression of the opinion of the late Dr. Hope,* an opinion which we know to be contravened by the reports of many of the cases which have been published as cured. They state, that the shoulder of the affected side had dropped, that the chest was left contracted, and that the spine was deformed; facts which clearly indicate an accommodation of the bony parietes to a diminution in the size of the lungs, and lead us to the inevitable conclusion, that the lungs so far from being cured, were too much injured to expand to their former dimensions.

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* De vulneribus pectoris penetrantibus.

† Appendix, Case 2.

‡ Vide Medico-Chirurgical Review, 1842.

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* Opus, cit.

I have lately met with two striking examples of the extent of mischief sometimes done to the lungs of patients said to be cured of effusions into the chest by absorption. Elizabeth Leighton, æt. 37, was admitted into the Hospital for Diseases of the Chest, on 30th January 1843; the left side of her chest was much flattened, being dull on percussion, and without even the feeblest sound of respiration. She said she had been in the Westminster Hospital some years before, suffering from an attack of pleurisy, of which she had been cured. Supposing that there must be fluid in the left pleura, I introduced the grooved needle, but found none. She died on the 27th of June, and on examining the body the left lung was found considerably diminished in size, impervious to air, condensed into a dry homogeneous mass, and retained in contact with the ribs by a thickened and almost cartilaginous pleura: no tubercles were found in either lung.

Douglas Graham, æt. 53, was admitted into the same hospital, March 2nd, 1843. The right side of his chest was nearly motionless, and very dull on percussion every where; no vesicular respiration could be heard in it; a sort of creaking leathery sound was audible at each inspiration, but air could not be perceived entering the lung any where, except under the clavicle, and there, it was accompanied by loud and large mucous crepitation: something like pectoriloquy was heard in this part; he could not remember having had pains of either side. He died on the 8th of October, 1843.

Sectio cadaveris.—Body much emaciated. On opening the thorax the upper third only of the right lung could be seen; the lower two-thirds were adherent to the ribs, condensed into a dry mass; the pleura was much thickened; there was a cavity at its upper part, and purulent infiltration into the lung; the left lung was somewhat emphysematous, and contained some miliary tubercles.

These cases I fear are more common than it is generally supposed: they show that patients may be sent out of an hospital, apparently cured of empyema and hydrothorax, because the fluid has been absorbed, but who must suffer all their lives from the loss of one lung, and they prove most clearly that absorption of effused fluid is not necessarily a cure.

From the zeal manifested by Dr. Hope, as well as by many others of the profession, to remove fluid from the chest by any other means rather than by tapping, we might be led to imagine that this must be either a very painful or a very injurious mode of treatment, and that any other would be better for the patient; but a moment's consideration of his condition, when an operation is thought of as a curative measure, will convince us that the contrary is the case. Until the remedies usually employed in such cases have subdued the pleurisy, but have failed to remove the effusion to which it has given rise, no one ever thinks of having recourse to an operation; mercury is the remedy which is always administered;

our patient is already salivated; his chest is full of fluid, and his strength is prostrated at the very time when we are called upon to decide, whether it is better for him to suffer all the miseries of a protracted salivation, or to be tapped. The very fact that the powerful remedies already employed have not very much diminished the effusion, proves that his constitution is scrofulous, and therefore one upon which mercury is known to act as a poison. If we persevere in the use of that medicine, we are certain that we shall do mischief, and we are by no means certain that we shall succeed in getting rid of the fluid by absorption, as some of the cases in this paper prove; but even if we could be sure of doing so, it is a slow and tardy process, and during the period required for its accomplishment, time is allowed for some of those irremediable changes of structure to take place in the lungs, which are noticed in the report of almost every fatal case of empyema or hydrothorax, and which must render its restoration to its healthy size and condition impossible, for, it appears certain that a large quantity of fluid of any kind cannot remain more than a certain length of time in the cavity of the pleura, without carnifying the lung, and for ever depriving it of its expansibility. Changes nearly as unfavourable to recovery happen to the pleura. It almost always becomes thickened, and sometimes cartilaginous, and so changed from its original structure, that it is incapable of resuming its healthy action, and must continue to secrete fluid; besides which, bands are formed between the membranes, which lead to future contractions of the chest. The cure of such cases, if cure it can be called, must be, as we have above seen, attended with great deformity, contraction of the chest, and the partial, if not total loss of one lung. It is moreover manifest, that absorption in empyema introduces into the circulation, matter which is totally unfit for the support of the body, and is, besides, by no means innocuous; and though the same objection cannot be made to the absorption of serum, nevertheless the very fact of its remaining any great length of time after inflammation of the pleura has been subdued, affords strong grounds for believing that it will not be absorbed. The retention of pus, possibly of serum, for a long time in the pleura, leads to the development of tubercles in the lung of the opposite or even of the affected side. This has been pointed out by Broussais, and Dr. C. J. B. Williams,* and a confirmation of it may be seen in the cases of Dyson and Spader;† we have, therefore, to apprehend, not only that the lung which is suffering from compression may lose its power of expansion, if we wait the length of time which the process of absorption usually occupies, but that a new and more fatal disease may assail the opposite organ.

In addition to the effects which the long continuance of pleuritic effusions produce upon the heart, lungs, and other organs, there are some which are felt by the constitution. The history of the more chronic forms of empyema and hydrothorax shows that, after a certain period, the powers of the patient begin to fail, debility and emaciation commence, and proceed rapidly. Hectic fever soon follows, colliquative sweats consume the little strength which is left, and the patient's powers and energies become completely prostrated. For these and other less important reasons, which I should enter into here, were it not for the necessity I am under of curtailing this paper, I am persuaded that the attempt to effect the absorption of fluid from the chest, under such circumstances as I have above detailed, inflicts much more injury upon a patient than tapping.

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* *Vide* Library of Medicine, art. Empyema.

† *Vide* Appendix, Nos. 4 and 15.

There are some highly respectable medical men, who admit that paracentesis is necessary in empyema, but maintain that it is wholly unnecessary in hydrothorax, because those cases of the latter which cannot be subdued by antiphlogistic means, may be cured by generous diet, with the use of iron and tonics. I admit that many cases may be so cured, for some such have fallen under my own observation, but I have met with many others in which such treatment has totally failed. I must, therefore, maintain that the greater number of the arguments already brought forward against trusting to absorption, are applicable equally to both these diseases; but the proof that tapping is not *unnecessary* in the latter, is directly to be inferred from the fact that many die daily of it. Dr. Boyd, in his Vital Statistics, states, that in the space of three years, in one institution, the St. Marylebone Infirmary, he opened the bodies of twenty-four persons who died of hydrothorax, and of twelve others, in each of whom he found evidences of pleurisy and effusion.* Now, I have too high an opinion of the medical skill of the gentlemen who had the charge of these patients, to doubt that all the usual means were adopted in their treatment. I am aware that tapping was not employed, and therefore it is plain that for the former, viz., the twenty-four cases, at all events that mode of treatment was not unnecessary.

Now, the objections to paracentesis are reduced to this—that it inflicts a wound; whilst in favour of it, it may be said, that in empyema it at once removes a noxious fluid, and does far less injury to the constitution than the absorption of purulent matter; that in both empyema and hydrothorax, it immediately relieves the lungs from the effects of pressure, and accomplishes that which internal medicines cannot, in the majority of cases, effect in weeks; and by its early employment, those irremediable changes already noticed are anticipated, and every chance is afforded for the complete restoration of the lung; that it removes that distension of the pleura, which paralyses the absorbents, and if inflammation be overcome by suitable remedies, it will effectually cure these diseases, provided the lungs are sound, and that, without inducing any evil consequences. It is, as Dr. Townsend observes,

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* *Vide* Edinburgh Medical and Surgical Journal, No. 156.

"an operation at all times easy of execution, productive of little pain to the patient, generally followed by immediate relief, and has, in numerous instances, been crowned with complete success."* It has been recommended by many eminent physicians and surgeons on the continent, in America, and in our own country—viz., Baron Larrey, J. P. Frank, Bell, Dr. Elliotson, Dr. Forbes, Dr. Copland, Dr. C. J. B. Williams, Dr. E. Harrison, the late Dr. Davis, and several others.

Having now replied, I hope satisfactorily, to the principal objections usually made against paracentesis as a curative measure in effusions into the pleura, it remains for me to lay before the Society my reasons for believing that that operation constitutes in many cases an important part of the treatment of these affections; but, to prevent any erroneous idea as to the nature of the cases for the cure of which I have ventured to recommend it, I beg to observe that in this paper the name of empyema is given to those only in which the fluid is purulent, and that of hydrothorax is used as a generic one, comprehending under it two species—inflammatory hydrothorax, in which serous effusion has succeeded to inflammation of the pleura; and mechanical hydrothorax, in which the effusion is symptomatic of organic disease in other structures.

Indications for the Operation.—Paracentesis is indicated to us as a remedy for those cases of empyema which do not quickly yield to ordinary treatment by the mode which nature often adopts for evacuating the fluid. Ulceration commencing in some portion of the pleura, extends through the adjoining structures, and makes an outlet for the accumulated fluid either through one of the intercostal spaces, or through the lung itself into a bronchial tube. The removal of the fluid is shown to be an indispensable part of the treatment of empyema by the manner in which a cure is effected in this disease. As the pus flows out, the upper portions of the pleura, which are first emptied, come into contact and adhere; the adhesion gradually extends downwards till the two layers of membrane become perfectly agglutinated together; no further accumulation can then take place, and the cure is effected by the obliteration of the cavity. Case 8 in the Appendix, for which I am indebted to Dr. Anthony Todd Thompson, affords a good illustration of the manner in which pus is discharged through an intercostal space, and a cure frequently effected. The subjoined case appears to have been one in which the opening was made between the cavity of the pleura and a bronchial tube.

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* *Vide* Cyclopædia of Practical Medicine, art. Empyema, p. 42.

Caroline Holloway, æt. 19, a scrofulous looking girl, after suffering a few days from pain in the upper part of the left side of her chest, but not so much as to oblige her to desist from her employment as a still-room maid, was suddenly attacked with an alarming sense of suffocation, which obliged her to jump up in bed, when she brought up in a stream so large a quantity of fœtid pus that it was received in a wash-hand basin; these symptoms recurred in paroxysms frequently afterwards, and were always relieved after the discharge of fœtid matter; the quantity brought up the first day measured more than three pints; that which came up daily for a week afterwards exceeded a pint. Her left side was every where very dull on percussion, no sound of respiration could be perceived in it any where, except at the root of the lung; the voice did not produce the ordinary vibration, but ægophony was well marked under the posterior and inferior angle of the scapula; neither "*bourdonnement amphorique*" nor "*tintement metallique*" could be perceived. I had little doubt from comparing all the signs, that the girl was suffering from empyema; but as there was some obscurity in the case, I requested the assistance of Dr. Edwin Harrison. He detected the same physical signs, and agreed with me as to the probable nature of the case. Neither of us could account for the large quantity of pus which was brought up daily, except on the supposition that a communication existed between a bronchial tube and the cavity of the pleura filled with pus, and yet the symptoms indicative of the presence of air were wanting in this case. I proposed to her master, that she should be tapped, but he would not consent to its being done, fearing she might die after the operation. Finding the patient daily becoming worse, I resolved, as a "*ressort dernier,*" to have as many cupping glasses as possible applied over the left side of the chest, but to have only

10 ounces of blood abstracted. After the operation I gave her a full dose of opium. Next day the expectoration had diminished to about 4 ounces; her breathing was very much relieved, and she felt better. From this time she gradually improved, respiration returning, and the dullness of the chest disappearing, and in three weeks she was well enough to go to her mother's house. Some months afterwards I had an opportunity of examining her chest: respiration was distinctly audible, in the side which had been affected; the sound on percussion was nearly natural, and scarcely a trace existed of the formidable disease under which she had laboured.* The efforts of nature to evacuate pus out of the pleura are so very frequent, as the records of cases of empyema clearly show, that they suggest to us the propriety of effecting promptly by an operation, that which is slowly done by the ulcerative process, provided the operation occasion no danger to the patient.

Paracentesis is not pointed out to us as a remedy for hydrothorax, by any effort made by nature to get rid of serum, but it is so by the effects which the pressure of fluid produces on the thoracic viscera. The cure of this complaint is not effected, as in empyema, by the adhesion of the pleuræ, but by the restoration of these membranes to a state of health; our object in operating, therefore, is not to remove the obstacle to the pleuræ coming into contact, but to prevent, or put a stop to those organic changes which the effusion is producing.

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* This case at first sight appears to afford an argument against the necessity of paracentesis, inasmuch as the patient recovered and the lung became respirable without it, but the cavity of the pleura was virtually tapped and the pus was evacuated through an outlet of nature's making, and the cure was then effected by the adhesion of the membranes; such a termination is so rare that we cannot calculate upon its occurrence.

Cases in which the Operation should be performed.—It would be desirable to ascertain if possible the cases for which paracentesis is the most appropriate remedy.

For serous effusions, which proceed so rapidly that the life of a patient is threatened by its speedy accumulation, it is admitted to be the only remedy. M. Lichtenstadt, Professor at St. Petersburgh, relates an instance of this kind, in which the life of a child was lost, from the operation not having been speedily employed.

For empyema, it ought always to be performed the moment the nature of the case is ascertained.

For serous effusions occurring in persons of scrofulous habits or very delicate health after pleuritic attacks, for the cure of which the necessary treatment has either failed, or been neglected, paracentesis will generally be required, for the usual remedies seldom produce any considerable diminution of the fluid.

In mechanical hydrothorax, paracentesis can only be recommended for the purpose of relieving the difficulty of breathing caused by the pressure of fluid upon the lung, and of prolonging life; it cannot cure this disease, for this form of effusion depends on a morbid and irremediable condition of the heart, which obstructs the free ingress of blood from the pulmonary and pleural veins, and thus causes an exudation of serum into the cavity of the pleura. After the evacuation of the fluid, however, it appears in many cases possible, to keep the quantity of blood in circulation in such proportion to the size of the obstructed opening in the heart, that distension is prevented, and no further effusion takes place for some time: therefore, though the operation cannot be advised as a curative measure, it sometimes does so much good as to warrant its being proposed to a patient suffering under this form of hydrothorax, as one sure to afford immediate relief, and which holds out a hope of prolonging his life for some weeks or even months, leaving it to him to decide whether he considers it worth while to undergo it for the sake of such a result. Life was certainly prolonged seven months by the operation in Bray's case.*

Conditions of success.—Whether the operation shall materially assist in curing cases of simple pleuritic effusion, or afford merely temporary relief, depends on the time at which it is performed. To be successful, it is indispensably necessary that it should be employed before either the constitutional powers of the patient are too much reduced, or the thoracic viscera have undergone irremediable organic changes: for in the former case the absorbents cease to perform their functions, and therefore cannot prevent the re-accumulation of fluid after it has been removed; in the latter, a perfect cure is impossible. It is only when the lung is in a condition to expand to its full size, according as the pressure upon it is withdrawn, that the cure is effected without any visible alteration of shape in the diseased side. But when the operation is delayed till the lung has become atrophied, condensed, bound down by adhesions, or in any other way prevented from at once expanding sufficiently to meet the ribs, the shoulder becomes depressed and the side contracted, in order to bring the pleuræ into contact with each other: the body is then deformed, and the original capacity of the lung is very much diminished. When the lung is so much reduced in size that the pleura investing it cannot be brought into contact with the costal pleura, a cure is impossible: for a space must intervene between them, into which pus or serum will continue to be secreted, and the operation will be required again and again, till the patient dies from exhaustion. Under such circumstances, paracentesis cannot be looked upon as a curative measure, and therefore should only be employed to relieve distress of breathing. The opinion of Laennec was decidedly in favour of operating early.* Mr. Youatt, in his lectures on pleurisy in the horse, inculcates the necessity of having recourse to the operation as soon as it is certain that there is a considerable quantity of fluid in the chest.

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* *Vide* Appendix, No. 3.

In depending mainly for its success upon its being performed as speedily as possible after the necessity for it has arisen, this operation is not singular. Releasing a strangulated hernia is often unsuccessful, simply because it has been too long deferred. Laryngotomy always fails if the brain has previously become affected by the circulation of imperfectly arterialized blood. In like manner, paracentesis thoracis is sure not to succeed if it be deferred too long. The judgment of a large portion of the profession must necessarily, in the absence of personal experience, be much influenced by the opinions of men of high standing; and as some of them are opposed to paracentesis, and none of them recommend it as a curative measure, it is not surprising that it should have fallen, as it has done, into very general disrepute, and been employed merely to afford temporary relief. Such being the usual practice, the fatal results which usually follow the operation confirm the prejudices which so generally prevail against it, and prevent us from being surprised at its having fallen far below that rank in the list of remedies to which its merits fairly entitle it.

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* *Vide* Dr. Forbes' translation of Laennec, page 191.

Time for the Operation.—It would be very desirable to fix, if it were possible, the precise period after which the operation ought not to be delayed. That evidently should be a little before those organic changes, so often alluded to, are on the point of becoming irremediable; but that point of time is not easily discovered. Indeed, the stage of the disease at which an operation will anticipate those changes, can only be determined by our knowledge of the earliest date, after effusion has taken place, at which they have ever prevented paracentesis from being so completely successful as to leave the lung expanded to its full size, after the removal of the fluid. That earliest date I believe to be about three weeks; and if I were myself the subject of empyema, or hydrothorax, I should not wish the operation to be deferred to any later period. Indeed I can see no good reason for wishing to postpone the operation as long as possible. It is a perfectly safe one, and the pain is very trifling: it is therefore better for a patient that it should be performed too soon, or even unnecessarily, than that he should be exposed to the risk of having his disease rendered incurable by delay.

I confess my opinion to be, that as soon as it is clear that pleurisy is subdued, and that a large quantity of fluid remains in the chest, we should proceed at once to ascertain its quality, by introducing the exploring needle (invented I believe by Sir B. Brodie), and if it is found to be purulent, the operation should forthwith be performed, because it is very far from being desirable that pus should be absorbed into the circulation, or prevent by its presence the adhesion of the pleuræ. If it is found to be serous, we may wait till the end of the third week, to see if medicine will cause absorption to proceed rapidly; and if it does not, the operation should not be deferred.

Many cases are recorded of patients who had been tapped with what is termed complete success, after having laboured under pleuritic effusions for several months; but I believe it would be found that in these cases the lungs never expanded to their original dimensions. No case occurred in my practice in which, after the lapse of five or six weeks from the commencement of the effusion, a patient was *perfectly cured.* The changes produced in the lung after this period, and sometimes before it, were irremediable: the fluid, after having been drawn off, accumulated again, and the patient either sunk, or survived with a considerable loss of lung. Case 16 in the Appendix is an instance of this kind: the patient recovered, but no vesicular respiration was perceived in the affected lung, and his death afforded an opportunity of seeing the condition to which it had been reduced.

The Operation.—Some difference of opinion exists as to the manner in which the operation should be performed, and the quantity of fluid which should be evacuated at one time. Formerly an incision was made into one of the intercostal spaces, the fluid was evacuated at once, and the wound was left open. Dupuytren, I believe, used to operate in this manner. More recently, the opening in the pleura has been made with a trochar, and either a catheter left in the wound, by which the fluid is drawn off gradually, the opening is made fistulous, or the wound is closed immediately. The two former modes appear to me objectionable, because they allow an almost continued ingress and egress of air, which I believe to be sometimes highly injurious; for although, as I have before observed, the entrance of air during the operation is not productive of any bad effect, yet its continued admission appears to excite an inflammatory state of the pleura.

Dr. Stroud published a case in the Medical Quarterly Review for October 1833, the principal features of which were, that after tapping the chest of a lad, a gum elastic catheter was left in the wound; that the fluid first drawn off was clear serum, but that which was discharged afterwards became daily more like pus, until the tenth day after the operation, when it was "yellow pus."

Dr. Stroud, commenting on this case, writes thus—"It is more probable that the gum elastic catheter retained in the pleural sac, and replaced when it occasionally escaped, or else atmospheric air, which during inspiration could scarcely fail to be sometimes admitted through the external aperture, was the cause of that increased and morbid action, to which the formation of pus must ultimately be ascribed."*

In many of the cases reported in the Table already given, the wound was left open, and the fluid was allowed to evacuate itself daily, without producing (to all appearance) any evil consequences; we cannot, therefore, believe that this mode of operating is necessarily injurious: the objection to it, however, seems to be, that it has no advantages sufficient to compensate for any risk, however small that may be. In cases of pneumothorax, it may be desirable to keep up an opening; but in simple empyema or hydrothorax, it is useless to allow the fluid to drain off, and therefore, in these diseases, the only motive for doing so is, to avoid the necessity of a second operation. Now, the operation itself is so very little more painful than common bleeding, that it is not worth incurring the smallest risk to avoid it. In almost all the cases recorded in this paper, the operation was performed with a common trochar, the whole of the fluid was evacuated, and the wound was closed immediately with adhesive plaister; and if the fluid accumulated again, the operation was performed as before, without a single instance of any evil consequences from it. As to the quantity of fluid to be removed at one time, the results of twenty-four cases have shown that there is no danger in emptying the pleura. It is clear, that if we evacuate more fluid than can be replaced by the expanding lung, air must fill the vacuum; but as this does not seem to be attended with either danger or inconvenience, I think it better to evacuate the whole of the fluid at once with a trochar.

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* *Vide* Medical Quarterly Review, vol. i.

The part of the chest in which the opening should be made, has been pointed out clearly by Laennec.* He recommends the space between the fifth and sixth ribs, counting from above downwards, and a little behind the digitations of the serratus major, as being the most dependent point in the horizontal position, freest from adhesions, and the seat of the largest quantity of fluid. It is in this situation that the operation was performed in almost all the cases I have to bring before the Society. A small but deep incision was made, a little below the middle of an intercostal space, the skin being previously drawn upwards or downwards, so as to render the opening somewhat valvular; a sharp trochar and canula were then passed inwards, and slightly upwards, with sufficient force to puncture the pleura. In some of the cases recorded in this paper, the pleura was pushed before the trochar, and not perforated in the first instance, owing either to thickened condition of the pleura, or the bluntness of the instrument. After the operation, care was taken to restore the pleura to a healthy state; the slightest return of pleuritic pain, the accession of febrile action, or dyspnœa, was immediately combatted, by either dry cupping extensively over the affected side, ordinary cupping, or counter-irritation, aided by the internal administration of small doses of mercury, and a well-regulated diet; when the patient appeared debilitated, a generous diet was given, with iron and quinine.

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* Op. cit.

On the Diagnosis.—In conclusion, I beg to notice a few diagnostic signs, which were observed in several of the cases I have reported, and for some of which I am indebted to Dr. Frederick Bird, a gentleman whose talents and zeal cannot fail to raise him to a high rank in his profession, and who at the time this paper was drawn up, was our clinical clerk in the Westminster Hospital.

The physical signs of effusion commonly laid down are readily recognized, even by an inexperienced auscultator, when the quantity of fluid is considerable, but no little difficulty is sometimes felt in detecting its presence, when the quantity is small. It may be overlooked from the following causes: the fluid, as a matter of course, gravitates to the most depending part of the chest, and if percussion elicits a dull sound in that situation, on the right side, it will be a question whether that sound is owing to the presence of fluid or to the liver; if, on the left side, a clear sound is elicited, it by no means follows that fluid is not present, for the clear sound may be accounted for by the inflated stomach lying behind a small quantity of fluid. In the former case, I have been greatly assisted in my diagnosis by the rules communicated to me by Dr. Edwin Harrison, for determining the height of the liver, and in the latter case by the mode of percussion suggested by him, by Dr. Addison, and by Dr. C. J. B. Williams. They most correctly point out, that very gentle percussion will elicit the dull sound depending on the presence of fluid, without producing any sound from the tympanitic stomach. In addition to the dullness on percussion, as a sign of the presence of fluid, we have a very valuable indication afforded by the absence of the vibratory thrill produced by the voice, and which is readily detected on the healthy side. This is one of the most simple and valuable evidences of pleuritic effusion.

In the ocular examination of the chest, the inaction of the intercostal muscles, their smoothness or protrusion, and the general enlargement of the affected side, with (in the later stages of the disorder) the depressed shoulder, are all well-known important diagnostic signs: but there is another, of equal value, which I believe has not been hitherto described. It consists, in a marked degree, of fullness, or even protrusion, of the infra-clavicular region on the affected side; this often exists to a remarkable degree, and it is generally associated with increased resonance of the voice in the same situation. Dr. F. Bird observed it in all those cases which have recently come under our observation. The bulging of the intercostal muscles has been regarded as a valuable indication of the presence of a large quantity of fluid. Dr. C. J. B. Williams has particularly alluded to this sign, in a clinical lecture published a short time ago, in which he remarks, "that when a large accumulation has taken place, the side becomes permanently expanded, and the intercostal spaces are effaced." My own experience does not allow me to regard it as a constant or a frequent sign; and I fully accord with Dr. Stokes, who is of opinion, that the protrusion of the intercostals only takes place in cases of purulent secretion; and the truth of this observation has been illustrated in several cases recorded by himself, as well as in several contained in this paper. The remark of an old writer, Albertini, appears not to be without truth, "that it is to the irritating action of the secretion, and not to its quantity, that the production of the effect just alluded to is attributable." Certain it is, that cases constantly occur, in which serum has been effused in very large quantities, sufficient to displace the heart, and to exert considerable pressure on the lung of the opposite side, without producing any bulging of the intercostals,—a fact which may be accounted for by the altered position of the mediastinum; nor is it less certain, that in cases in which a comparatively small quantity of pus has been formed, the intercostals have been much protruded. That this protrusion does not depend on the mechanical pressure of the fluid alone, is clear from the cases already alluded to, in which the protrusion was not in proportion to the quantity of fluid contained in the pleural cavity. In the case of Spader,* 105 oz. of serum were found in his chest, with an apparent retraction of the intercostal muscles of the affected side, whilst in the case of Rodwell,† in which the fluid was smaller in quantity, but purulent, the intercostals were remarkably prominent, although the effusion in the former case had existed for a much longer period than it had done in the latter. But a still more satisfactory illustration is afforded in the case of the patient, Sampson Glover,‡ in whom the absence of this sign, in an early period of the disease, and its subsequent development in a later one, marked the transition of the serous to the purulent secretion. When paracentesis was first performed, 75 oz. of serum were drawn off, the intercostal muscles not being at all prominent; whereas, shortly before his death, they had been considerably protruded, and on dissection it was discovered that the contents of the pleura had assumed a purulent character; other equally satisfactory examples are afforded in the Table.

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* *Vide* Appendix, No. 16.

† *Vide* Appendix, No. 22.

‡ *Vide* Appendix, No. 15.

Experience, then, appears to show, that the protrusion of the intercostals is to be regarded as indicative of the quality, but not of the quantity, of the effusion.

The position assumed by the patient has been regarded as a valuable indication of the side on which the disease exists; the patient generally lying upon the back, or occasionally on the diseased side, but being unable, from increased dyspnœa, to remain even a short time upon the unaffected side: this is usually attributed to mechanical causes, viz. the pressure of the fluid upon the heart and opposite lung, and the displacement of the abdominal viscera; whatever the cause may be, in a practical point of view, it is necessary to observe, that although the decubitus alluded to is a frequent indication, yet it is by no means a constant one; many recorded cases have sufficiently illustrated the dangerous fallacy attending it. Dr. Townsend refers to one case in which the death of the patient was produced by paracentesis having been performed on the healthy side, the operation having been guided chiefly by the position of the patient. Many of the cases recorded by Morgagni,* on the authority of Valsalva, are those in which the patient was quite unable to lie upon the diseased side, and more than one similar instance is met with in the accompanying cases; the exceptions indeed are so numerous that this sign becomes of less than secondary value. The ability to lie on the healthy side has been theoretically explained by Dr. Townsend, who imagines that pleuritic adhesions having formed, prevent the gravitation of the fluid; but in the cases given by Morgagni no such adhesions existed, and it is probable that the cause is to be sought for in the healthy condition of the lung of the opposite side, and in the fact of the patient having become gradually habituated to the effects of the disease.

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* De sedibus et causis Morborum.

The frequent occurrence of pleuritic effusion upon the left side of the chest is remarkable; the ratio in the cases contained in this paper being as seven to five, whilst those recorded by Valsalva and others contained in the "*Sepulchretum*" of Bonetus afford the same result. This, remarkable as it is, can only be offered as a fact unsupported by any explanatory hypothesis, the cause remaining in the same obscurity as that which determines the early development of tubercles at the apices of the lungs.

For the purpose of presenting in a condensed form the general results of the cases in which paracentesis has been employed under my own observation, or that of my friends, I have, in the subjoined Table, inserted in separate columns the most material features of each of them.

A TABLE OF CASES OF PLEURITIC EFF BY NT

No.	Names of Patients.	Age.	Number of Days between the Pleurisy and Operation.	Dates of Operations.	Number of Operations.	Qu		rks.
1	George Louch	5½	98 days	March 15, 1833 Do. 28, 1833	2	Pus, 43 oz. Pus, 38 oz.	Cured	
2	Silas Hann	20	42 days	August 8, 1833	1	Serum, 6 pints	Cured	This man died the year following in St. George's Hospital, having been tapped in the other side of his chest.
3	Richard Bray	50	70 days	June 7, 1834	1	Serum, 60 oz.	Relieved	He worked in Covent-Garden market till the following November, and died of general dropsy. His case was not inflammatory hydrothorax; he was phthisical when admitted.
4	Charles Dyson	48	455 days	July 23, 1836	1	Pus, 28 oz.	Died of Phthisis	
5	Catherine Eades	10	32 days	January 26, 1837	1	Pus, 8 oz.	Cured	
6	Thomas Rigg	19	Some large number	July, 1837	1	Pus, 4 pints	Cured, with contracted chest	
7	Anne Swinton	7½	Doubtful	July, 1837	1	Pus, 5 oz.	Cured, with contracted chest	
8	Joseph Willis	26	87 days	Dec. 1, 1837	1	Pus, 50 oz.	Recovered	He died long after the operation. The wound was left open.
9	Peter Murray	28	23 days	Dec. 28, 1837	1	Pus, 10 oz.	Cured	
10	— Hardwicke	9	Doubtful	Autumn, 1838	1	Pus, 8 oz.	Cured, with some contraction.	The contraction of this little girl is said to be slight.
11	B. D——	62	Doubtful	—— 1838	3	Serum, 64 oz. Uncertain Uncertain	Died	The operation was performed to give relief, but without a hope of saving him.

12	— Perkins	53	Doubtful	Autumn, 1838	3	Serum, 62 oz. —— 56 oz. —— 41 oz.	Died	This was a hopeless case from the first.
13	C. E——	43	Doubtful	—— 1839	2	Serum, 120 oz. —— 73 oz.	Died	
14	— ——	3½	Doubtful	—— 1839	1	Sero-purulent, 4 oz.	Cured, with contracted chest	
15	Sampson Glover	28	212 days	May, 1840	1	Serum, 5¼ pints	Died	
16	James Spader	55	106 days	June, 1840	1	Serum, 105 oz.	Cured	
17	W. Sharpe	38	38 days	August 24, 1840.	1	Serum, 4 pints	Cured	
18	James Wray	40	42 days	August 25, 1840	1	Serum, 4½ pints	Cured	
19	Edward Evans	21	18 days	Nov. 10, 1840	2	Serum, 6 oz. —— 8 oz.	Cured	
20	George Cooper	28	42 days	January, 1841	2	Serum, 30 oz. —— 25 oz.	Cured	
21	William Crichton	34	21 days	Feb. 10, 1841	1	Serum, 3½ pints	Cured	
22	James Rodwell	58	21 days	April, 1841	1	Pus, 90 oz.	Cured	
23	L. R——	17	42 days	April, 1843	3	Serum, 3 pints —— 3 pints —— 5 pints	Cured	
24	B. Donovan	38	49 days	March 1844	2	Sero-purulent, 56 oz. —— 8 oz. Air also	Died of Pneumothorax.	This was a case of pneumothorax with fluid; he was phthisical on admission.

Of 24 cases upon whom the operation was performed, . 18 recovered, . 6 died.
9 of these were cases of Empyema, of which . . 8 recovered, . 1 died.
13 were cases of Inflammatory Hydrothorax, of which 9 recovered, . 4 died.
1 was Mechanical Hydrothorax, ... 1 relieved (Bray)
1 Pneumothorax . . . . 0 . . . . . . 1 died.

Mr. Benjamin Phillips has favoured me with the following memorandum : " Among my notes of the result of this operation I find a record of 122 cases, of which 88 were cured. I find particularized 31 cases of pyothorax, of which 26 were cured, and 9 cases of hydrothorax, of which 6 were cured."

I am not acquainted with the particulars of these cases.

From the perusal of the foregoing Table it will appear evident that I have not made any over-statement in saying, " that this operation is not more dangerous than any other which is performed upon the human body, and that the evil consequences supposed to attend it are imaginary rather than real, inasmuch as it not only was not fatal in one of these twenty-four cases, but did not cause in any of them the smallest permanent inconvenience. In every instance where it was employed at an *early stage* of empyema, or inflammatory hydrothorax, it was successful, and failed to cure in those only where it had been long deferred. The total mortality proportional to the whole number of cases, viz. six in twenty-four, is less than that which occurs after most operations, and yet it is more than can fairly be laid to the charge of paracentesis thoracis, as one of the deaths (Dyson's) was from phthisis, another (Donovan's) from pneumothorax, and a third (Bray's) from mechanical hydrothorax: for none of which diseases have I advocated the operation as a curative measure. Deducting these three cases, the mortality will be three deaths out of twenty-one cases. Had I been desirous to present to the Society the strongest possible case in favour of paracentesis, I might fairly have excluded Dr. Edwin Harrison's and Mr. Phillips' patients, two of whom to my own knowledge were in a hopeless condition at the time when the operation was performed upon them ; but, rather than exclude any case, I prefer to give every one which came under my observation, in order that my professional brethren may see that I report the successful and unsuccessful cases with equal faithfulness, and may have data on which to form their own judgment as to the propriety of reviving this very ancient remedy, one which can be traced up to Hippocrates. The cases in the Appendix will show that the success of the operation was directly in proportion to the shortness of the time which intervened between the accumulation of the fluid and the performance of the operation, and that when it was unsuccessful the chief cause of its failure was its being postponed until too late a period: the very fact that, with the exception of one case (No. 24) of pneumothorax, death occurred only where the effusion had been of very long standing, suggests the opinion that the failure of the operation may be attributed to the duration of the disease, the contracted state of the lung, and other changes which the thoracic viscera are known to undergo from the long-continued pressure of the effused fluid, and leads to the conclusion that we ought not unnecessarily to delay the operation a single day.

APPENDIX.

Case 1.—The first patient upon whom I saw paracentesis thoracis performed was George Louch, æt. 5½. As his case was published in the Medical Gazette, by Mr. Woolley, whose patient he was, I need only say, that, in the situation usually selected, the breathing was audible; Mr. Woolley therefore introduced a trochar anteriorly to it, and drew off, on the 15th of March 1833, 43 oz. of healthy pus; a considerable quantity more escaped by the side of the canula; air entered freely into the chest during the operation, owing to the struggling of the child; he experienced immediate relief from the operation, but a second accumulation took place, and on the 28th of March 1833, Mr. Woolley again introduced a trochar, and drew off 38 oz. of pus; respiration gradually returned over the whole of the left side; at the end of three weeks the heart had regained its natural position, and the boy appeared perfectly well. No internal remedies, except occasional aperients, were employed in his treatment.

Case 2.—Silas Hann, æt. 20, a tailor, was admitted as a patient of mine into the Westminster Hospital, on the 6th of August 1833. He was a dark, unhealthy-looking man, had long been subject to cough, and delicate health. Six weeks before, he had been attacked by rigors, pains in the limbs and general malaise, followed by difficulty of breathing, frequent cough, and an acute pain on the right side of the chest, which was greatly increased by taking a full inspiration. For these symptoms no active treatment was adopted, and he began shortly afterwards to suffer so much from increased dyspnœa and cough, that he was unable to follow his employment. When admitted into the hospital, all the signs of effusion into the right pleural cavity were observed: paracentesis was performed, and six pints of clear serum were evacuated. During the operation, air entered very freely into the chest; but after it, some respiration could be heard in the lung. On the following day the chest was sore and painful, several cupping glasses were applied to it, and six ounces of blood were abstracted. On the third day the breathing became very distressing, and the chest tympanitic. At the suggestion of Mr. Walsh, who was then our clinical assistant, and who is now practising at Worcester, an exhausting syringe, terminating in a fine canula, was passed into the chest, the wound being then healed. The air was pumped out in a few minutes; and from that time no further accumulation of air or fluid occurred, the respiratory murmur gradually returned, and the patient quickly became convalescent.

Case 3.—Richard Bray, æt. 50, a waggoner, was admitted into the Westminster Hospital, under my care, April 20, 1834, with the following symptoms:—laborious respiration, 26 in a minute; orthopnœa; sleep interrupted by frequent starts, and jumping up from fear of suffocation; action of the heart violent; ascites; lower extremities anasarcous; urine deficient in quantity, but not albuminous; the left side of the thorax more distended than the right, very dull on percussion at its lower half; bronchial "*râles*" audible over the greater part of the lung; heart's action irregular and tumultuous, accompanied by a very loud "*bruit de soufflet.*" It appeared from his previous history that, four years ago, he was the subject of acute rheumatism, that he had suffered from palpitation of the heart and dyspnœa upon exertion ever since, that within the last year he had had œdema of the lower, and occasionally of the upper extremities, with troublesome cough and copious mucous expectoration, frequently streaked with blood.

I gave him various diuretic and purgative remedies, without any decided or permanent benefit; and early in June he was suddenly attacked with very severe dyspnœa, irregularity of the heart's action, and bounding pulse, 137 in the minute. His face was congested with blood, his body was covered with perspiration, and he appeared to be sinking. At his own earnest request, paracentesis was performed on the left side, and 60 oz. of clear serum were removed, with immediate relief, the lung appearing to expand at its upper part as the fluid flowed out. The trochar used in the operation was so blunt that it pushed the pleura before it, without perforating it at first: it entered, however, at the second attempt. Notwithstanding the violence used, no bad symptom supervened. He remained in the hospital several weeks afterwards; and, though he had occasionally attacks of severe dyspnœa, he slowly improved, the lung was relieved, the anasarca disappeared, and after some time he returned home, and worked in Covent-Garden market, carrying vegetables, until the following November, when he again returned to the hospital with general dropsy, effusion into both pleuræ, and difficult breathing, and died in a few days. His heart was found very much enlarged, the valves on the left side were thickened, and all the cavities contained more or less of fluid.

Case 4.—Charles Dyson, æt. 48, residing in Regent-street, Westminster, was admitted into the Westminster Hospital, July 9th, 1836, as my patient, suffering from difficulty of breathing, frequent cough, and abundant muco-purulent expectoration. He could only lie on the right side; the left side hardly moved during respiration: it measured half an inch less than the right, was everywhere very dull on percussion, no respiratory murmur was audible in it, except immediately under the clavicle, but blowing sounds could be heard close to the spine; the intercostals were prominent; the heart was felt beating under the right margin of the sternum. He said his health had not been good for some time, but he could not recollect having suffered from pain in the side; during the last fifteen months he had had frequent attacks of dyspnœa and cough, particularly upon making any great exertion. He was told that paracentesis would afford him the best chance of recovery, though his case was a very unfavourable one. The operation was performed, but there was some difficulty in penetrating the pleura, which appeared to be pushed before the trochar, in consequence, in all probability, of its thickened condition: 28 oz. of pus were removed, with some relief to his breathing; but the heart did not return to its place, neither could respiration be heard in the left lung. The fluid soon accumulated again; the man did not wish the operation repeated; and, as I could not promise him any benefit from it, I did not press it. He was, therefore, treated with calomel and opium, and afterwards with tonics, iron, &c., but without any good effect. He became gradually more and more exhausted, and died in about seven months from his admission.

Sectio cadaveris.—The pleura on the left side was very much thickened, and coated in patches with false membrane; adhesions between the pleura costalis and pulmonalis had formed two separate cavities—the inferior had been opened by the trochar, but the superior had not—it contained nearly eight pints of pus; the lung was carnified and incapable of expansion, no tubercles could be detected in it, but the lung on the opposite side *was studded with minute crude tubercles.*

Case 5.—Catherine Eades, æt. 10, residing in Frederick-place, Hampstead-road, was seen by me, on the 19th of January 1837, in consultation with Mr. Lambert, of Berners-street. She was much emaciated, and was lying on her back, breathing tolerably easily; her pulse was very feeble, 120, her skin cold, and she complained of great debility. The whole of the left side sounded dull on percussion, especially at the middle and lower part; respiration could be very faintly heard under the clavicle, but in no other part. The right side sounded clearly on percussion, and respiration was louder than natural: there was no ægophony. The heart was felt pulsating in its natural position, and still more strongly on the right side of the sternum also; she could lie on either side. Mr. Lambert informed me that he had been requested to see her on the preceding Christmas-day, and had found her suffering from pleurisy of the left side; that the more acute symptoms had yielded to the ordinary treatment; but that, instead of recovering her health, she had become gradually more and more emaciated; her pulse had quickened, febrile exacerbations had come on, with a very troublesome cough. We agreed in thinking that in all probability there was fluid in the left side of the chest; but we were puzzled to account for the heart being felt so very distinctly at both the right and left side of the sternum, and could only suppose that a distended pleura had pushed the heart out of its place, and now communicated its impulse on the left side, just as a tap given to a distended bladder at one side is felt at the other. We introduced the exploring needle, and the appearance of a few drops of pus proved the correctness of our diagnosis. The child was then too weak to bear an operation. Quinine, ammonia and generous diet were given her; and, at the end of a week, Mr. Lambert withdrew 8 oz. of unusually thick pus, resembling thick mucilage, with a common trochar. The wound was closed, but would not heal, and a considerable quantity of purulent matter was discharged through it for four weeks afterwards: at the end of this time it healed. The child's health improved rapidly after the operation; tonics and generous diet were continued, counter-irritants were applied to the affected side, and in about three weeks respiration became distinctly audible in the upper part of the affected lung, and by degrees through the whole of it. She had no return of bad symptoms, and a short time ago was in perfect health.

Case 6.—This patient was treated by Mr. W. H. Smith, surgeon to the South London Dispensary, who has kindly furnished me with an outline of his case. July 3rd, 1837, Thomas Rigg, æt. 19, a blacksmith, applied this day for relief. He stated, that some months ago he had been affected with violent cough, accompanied by severe pain in the side, and expectoration, for which he had been bled, blistered, and salivated. He told me his medical attendant had pronounced him in the last stage of phthisis, and said it was impossible he could live many days. He breathed with great difficulty, had a troublesome cough, and expectorated pus: his pulse was 140, face flushed, and his fingers presented the most truncated extremities I ever saw. On examining the chest, I found a preternatural expansion of the left side; upon pressing the intercostal spaces, they felt distinctly distended, and gave me the impression that fluid was contained in the cavity of the pleura; there was also great dullness on percussion, and a total absence of the respiratory murmur over that side. I resolved to perform the operation of tapping, believing it to be the only means of saving him. After making an incision through the skin with a scalpel, I cautiously introduced an hydrocele trochar between the sixth and seventh ribs, about their junction with the cartilages, the point where the distension appeared greatest, and drew off about four pints of well-formed, bland, and perfectly inodorous pus. In a few days the irritative fever subsided, under the usual treatment, and afterwards, by the use of a generous diet, and quinine, he rapidly recovered his health and strength, but matter continued to discharge through the wound, which had become fistulous, for many weeks. I have seen this patient to-day, April 6th, 1844, after an interval of nearly seven years; he appears in good health, is free from cough, and his strength is unimpaired. There is great contraction of the left side, from the dorsal vertebræ to the middle of the sternum. The affected side measures thirteen inches and a half; the sound, or right side, twenty inches.

Case 7.—Mary Anne Swinton, æt. 7½, residing at 7, Paragon-row, Walworth, was also under Mr. Smith's care, 6th of July 1837. He states, that his attention was called to this case by Dr. Hughes, who was then his colleague—that after consultation, they felt satisfied there was a collection of fluid in the right side of the child's chest, and decided that paracentesis was called for. Mr. Smith pushed in a lancet through the intercostal space, between the sixth and seventh ribs, near the angles, and drew off about 5 oz. of healthy pus. This little patient perfectly recovered, but with a contracted chest.

Case 8.—Joseph Willis, æt. 26, was admitted into University College Hospital, under the care of Dr. A. T. Thomson, on the 17th of October 1837. His previous habits had been intemperate, but, with the exception of a slight cough, he had usually enjoyed excellent health, until six weeks ago, when he was attacked with fever, for which he was admitted into the Fever Hospital. On his admission into the College Hospital, he complained of excessive debility, was greatly emaciated, had a severe cough, without expectoration—confined bowels, and slept badly. His tongue was dry and red—the stethoscope indicated the respiration to be natural on the right side, but on the left, it was heard only at the root of the lung—pulse sharp, 110.

December 1st.—Yesterday a projection appeared between the fifth and sixth ribs of the left side; the operation of paracentesis thoracis was performed, and 50 oz. of pus were evacuated. On the 15th, the respiration had returned immediately under the clavicle on the left side: the orifice formed by the operation continued to discharge freely. He continued to improve slowly, but decidedly, except that he suffered from copious nightly perspirations: the orifice of the operation, and a wound which had opened two ribs below, continued to discharge. The resonance on the left side extended gradually below the clavicle, as did also the respiratory murmur, which at length became audible below the mamma: the side flattened in a remarkable degree—the discharge almost disappeared. On the 14th of February 1841, he was attacked with acute bronchitis, and died on the 17th, exactly three years and ten days after the operation of paracentesis thoracis had been performed.

Sectio cadaveris.—Body examined twenty-four hours after death. The emaciation was considerable—the left side of the thorax was greatly flattened, and the spine was curved to the right side. On opening the chest, the heart was seen lying towards the right side, and almost over the spine; the right lung was nearly of its natural size, and weighed 2 lb. 4 oz. 2 dr.; the left was very much shrunk, weighing only 10 oz. 7 dr.: throughout the substance of the right lung were scattered many small white granules, about the size of a millet seed, which had, however, no appearance of tubercles, but resembled inspissated pus, contained in cysts, having no communication with one another, but apparently connected with the bronchi. The space at the bottom of the left thoracic cavity contained about ℥xii of fœtid purulent matter, and lying loosely in this fluid was a piece of carious bone, apparently part of one of the ribs. It was about an inch long, and half an inch broad. The whole of the pleura, on this side of the chest, was coated with a false membrane, nearly half an inch thick, and of cartilaginous firmness; the free surface of the membrane was black—the ribs were greatly hypertrophied, being nearly an inch and a half in thickness, very spongy, and vascular; the left lung, beside being much shrunk, was adherent behind through its whole length, and below to the diaphragm. A small portion of its anterior tissue was pervious to air, and crepitant, but the remainder was a mass of tough, nearly homogeneous, dark-coloured tissue, except the bronchial tubes, the larger of which were still pervious, although much lessened in diameter; the greater number of the smaller were obliterated; the pericardium contained a small quantity of clear serum; the heart weighed 8 oz., and was small in size—nevertheless, the substance of the left ventricle was slightly hypertrophied, and the membrane lining it somewhat opaque.

This patient lived long enough to permit the almost complete obliteration of the pleural cavity to be effected by the agglutination of the granulating membranes; a small portion, however, remained in the immediate neighbourhood of the opening made by the trochar, where the surfaces had not adhered, and still continued to secrete unhealthy purulent matter, and evinced but little disposition to heal.

Case 9.—Peter Murray, æt. 28, was admitted into the Westminster Hospital on the 19th of December 1837. He was an anxious-looking man, of a sallow complexion and unhealthy appearance, and complained of cough, great difficulty of breathing, acute pain in the right side and different parts of his body, great prostration of strength, and relaxation of the bowels. Respiration was very indistinct over the whole of the right lung, and percussion gave a very dull sound. Respiration was loud over the left side. He said he had enjoyed good health until about fourteen days ago, when, after exposure to cold, he was seized with shivering and pain of the right side. He was cupped on the painful side to 10 oz., and took 2 gr. of calomel, with ipecacuanha and conium, at first every four hours, and afterwards every two hours, until the 28th of December, when the effused fluid not appearing to diminish, an exploring needle was introduced, and pus oozed out. The operation was now performed with a trochar, and 10 oz. of purulent matter were evacuated. The relief afforded him was greater than could have been expected from the small quantity of fluid withdrawn. Respiration could be perceived at the upper part of the lung, but ægophony was heard under the right scapula. From this time he continued to improve, was put on full diet on the 3rd of January 1838, respiration became more audible, and his condition was so altered that no more reports were made, and he went out well about the middle of January.

Case 10. —— Hardwicke, æt. 9, had an attack of pleurisy in the year 1838, which was followed by the ordinary symptoms of effusion, notwithstanding that active treatment had been adopted. The left side was punctured with a flat trochar, and about half-a-pint of pus was drawn off. On the following day, the wound being closed, and more fluid being detected in the chest, an opening was made with a common abscess lancet, and about half-a-pint more was evacuated. The wound was now left open, and pus continued to be discharged through it daily for three months, but gradually decreasing in quantity until it ceased altogether, when the wound healed spontaneously. During the first few weeks the child suffered from constitutional disturbance, but afterwards recovered her health and strength: she is now perfectly well, and the respiration is restored in the left lung.

This was a case of Mr. Thompson's, of Westerham; and it was communicated to me by Mr. Buller, who was his partner at the time the operation was performed.

Case 11.—B. D., æt. 62, was a patient of Dr. Macreight's, in the Marylebone Infirmary, in 1838; but was left in charge of Dr. Edwin Harrison, and was tapped by Mr. Benjamin Phillips, who has kindly communicated to me an outline of the case. The man principally complained of shortness of breath and swelling of the ancles, with great debility. Upon examination, the heart's impulse was not observable on the left side of the sternum, but it was distinctly perceptible on the right, less distinctly under the sternum also. It was evident that a considerable quantity of fluid existed in the left cavity of the chest, and it appeared probable that it had caused displacement of the heart. The disease had been evidently of long standing, and the man was too much debilitated to expect a favourable result; but, as the operation was sure to afford him great relief, the chest was tapped with a trochar, and 64 oz. of transparent straw-coloured fluid escaped. Immediate relief followed, and in the course of a few days the heart was found to have inclined considerably towards the left side. Again the fluid accumulated, and the operation was repeated with similar results. Every drop of fluid which was within reach was allowed to escape, and no precaution was taken to prevent the entrance of air, which completely occupied that side of the chest, but no inconvenience was experienced from its presence: in a few days it seemed to have disappeared. The heart now resumed very nearly its proper place, and for nearly three months there was little tendency to re-accumulation. After that, the embarrassment returned, he was again tapped, lingered on a few weeks, and died: no opportunity was afforded for examining the body. I give this and the following case as being illustrative of the obstacles which extreme debility opposes to the cure by an operation, and of the effects of postponing paracentesis until too late a period. They ought not to be calculated amongst those which appear to show the unfavourable results of the operation, as Mr. Phillips from the first had an unfavourable opinion, as well as Dr. Edwin Harrison and myself.

Case 12. —— Perkins, æt. 53, was a patient of Dr. Edwin Harrison's, in the Marylebone Infirmary, in 1838, and was operated upon by Mr. Benjamin Phillips, to whom I am indebted for the following outline of the case. The man had diseased heart, and the usual signs of hydrothorax of the right side of the chest. 62 oz. of transparent straw-coloured serous fluid were removed. The relief was immediate, and no inconvenience followed the operation. In two months effusion had again taken place: he was tapped a second time, and 56 oz. of equally transparent fluid were removed. It was rather higher coloured; and, upon the addition of nitric acid, yielded a larger quantity of albumen than the former fluid. Two months later it became necessary to tap him a third time, but only 41 oz. of fluid were then procured. The fluid was in all respects similar to that yielded on the previous tapping. The relief was less decided on this than on the former occasions: the oppression was less completely relieved, and he died at the expiration of about five months from the first tapping. The examination after death revealed a curious circumstance: a horizontal septum separated that side of the chest into two complete compartments; the lower was emptied, but in the upper, between 30 and 40 oz. of fluid were found.

Case 13.—C. E., æt. 43, was admitted a patient of the Marylebone Infirmary in 1839, with symptoms of chronic disease of the liver and effusion into the right side of the chest, for which the ordinary means were tried without success. The difficulty of breathing having become very urgent, the chest was tapped by Mr. Phillips, and 120 oz. of tolerably transparent deep citron-coloured serum escaped. The relief was instantaneous and complete. In the course of a month the breathing again became difficult, tapping was had recourse to, and 73 oz. of similar fluid were evacuated, with similar but less permanent relief. In the course of twelve days he died, but was not examined after death. Mr. Phillips adds, the only appreciable difference between the fluid of the first and second tapping was, that upon the use of heat and nitric acid, a larger quantity of albumen was detected in the latter than in the former.

Case 14.—The following case also came under the care of Mr. W. H. Smith, after effusion had taken place, and he did not know what measures had been adopted for the cure of the pleurisy.

August 1839. ———, æt. 3½, residing at 3, Spring-place, Wandsworth road, had all the symptoms of effusion into the left pleural cavity. Her mother stated that she had been suffering some time from a harrassing cough. The left side of her chest was decidedly prominent, and the intercostal spaces appeared distended. Mr. Smith introduced a lancet, and drew off 4 oz. of sero-purulent matter. This little patient required a great deal of care; but, with generous diet, tonic medicines, and good nursing, she ultimately recovered her health and strength, but her chest remained *very much contracted.*

Case 15.—Sampson Glover, æt. 28, was admitted into the Westminster Hospital, as my patient, in May 1840. He was a leather-dresser, of marked strumous diathesis, and moderately temperate in his habits. Eight months ago, after exposure to damp and cold, he was attacked with acute pain on the left side of the chest, cough, and great dyspnœa, for which the only treatment employed was an occasional dose of purgative medicine; he was so ill that he was confined to bed for some time, but at the end of a month he was able to resume his occupation. Ever since his supposed recovery, he has been subject to frequent attacks of dyspnœa and cough, with acute pain in the affected side, painful respiration, and palpitation of the heart: he has lately lost flesh very much.

His face is pale, conjunctiva blanched, fingers attenuated and clubbed, skin perspirable; he lies usually on his back, sometimes on his left side, but never on the right; he suffers much from dyspnœa, which is aggravated by change of posture, and troublesome cough, particularly on first lying down in bed—he expectorates a good deal of transparent mucus. Pulse 88 in the erect posture, feeble but regular.

Physical signs.—Respirations 36, inspirations prolonged. The right side of the chest expands freely—the left side is nearly motionless; it measures three-quarters of an inch more than the other. The intercostal muscles are nearly on the same plane with the ribs; on placing the fingers of one hand in one of the intercostal spaces, and percussing with the other hand below the margins of the ribs, fluctuation can be perceived; the dullness is uniform in every part of this side, except immediately under the clavicle: there is no vesicular respiration, but harsh bronchial sounds are audible between the scapulæ, close to the spine—vocal resonance is increased at the two superior thirds of the side, and in the axillary space, where it resembles the sound of punchinello. Respiration on the right side is puerile: the heart cannot be felt on the left side, but its apex is felt pulsating about two inches below the right nipple.

Three days after his admission, the operation was performed, and 5¼ pints of high-coloured serum were withdrawn, the specific gravity of which was 1·20; whilst the fluid was escaping, the heart was observed to glide towards its natural situation, and when the chest was emptied, its apex was felt at the ensiform cartilage: air passed freely into the chest towards the close of the operation. In two hours he was able to lie on the right side. Respirations 30—the left side sounded as clearly as it usually does in pneumothorax.

Next day, May 15th, the position of the heart was in the median line, tubular respiration could be heard as low as three inches and a half beneath the left clavicle, and the tympanitic sound was much less marked.

May 18th.—Complains of occasional pains about the left side, with some dyspnœa; the cough and mucous expectoration continue—the heart is now felt at the right side of the sternum—the dullness on percussion occupies a larger space than it has done since the operation: he walks out for a few hours, but any great exertion produces severe dyspnœa.

May 19th.—Dullness extends still higher; breathing more difficult. He complains of acute pain at the lower part of the left side of the chest: pulse more frequent—feels very weak.

May 23rd.—No doubt now remaining that fluid had again accumulated, he was tapped, and three pints of serum, with small flakes of albuminous matter floating in it, were withdrawn.

May 24th.—Was much relieved by the operation; the intercostal muscles now act during respiration; the air which entered yesterday has not quite disappeared.

May 27th.—Appeared to improve until to-day; his respiration is now hurried, and the physical signs of fluid have again appeared. He remained in the hospital only a few days afterwards, being anxious to go into the country. No marked alteration had taken place in his symptoms, excepting that the intercostal muscles, from being on the same plane with the ribs, had become very prominent. He had scarcely arrived in the country, when his sufferings increased so much, that he requested to be tapped again; the operation, however, was not performed, and he quickly sank. Mr. Martyn, of Mortock, under whose care he was, thus describes the *post-mortem* appearances: "The left pleural cavity contained fourteen pints of sero-purulent fluid, having a fœtid odour. The left lung was completely collapsed; it adhered to the upper part of the mediastinum, and was about four inches long and two broad; it weighed about 3 oz.; its outer surface was covered with adhesive matter. The pleura costalis much thickened, and covered with coagulated lymph. The pericardium was forced into the right side of the thorax, and contained about half a pint of serum. The right lung was much compressed, its inferior lobe congested, and its surface covered by old pleuritic adhesions."

Case 16.—James Spader, æt. 55, a strongly-built Scotchman, was admitted into the Westminster Hospital, under my care, on June 2, 1840. His employment was that of a lapidary; his previous health had been good, and his habits temperate. Three months ago he had been attacked by acute pain at the lower and posterior part of the left side of the chest, accompanied with febrile disturbance and cough. He was not bled, being supposed to have disease of the kidney. In about a week the pain abated, but did not leave him for a month: at the end of which he began to suffer from increased dyspnœa and cough, with great emaciation. Before his admission he had taken mercury freely for some weeks. His present symptoms are, general febrile disturbance, feeble and quick pulse, flushed face, tongue covered with a white mucous secretion, apparently the effect of ptyalism. He has a frequent cough, with copious mucous frothy expectoration, is unable to lie for any length of time on the right side, and complains of shortness of breath, especially on moving. The physical signs are, dullness on percussion, over the lower three-quarters of the left side of the chest, where vesicular murmur is wanting, and is replaced by distant tubular respiration; the vibratory thrill communicated by the voice is lost; there is some bronchophony, but no ægophony. The intercostal muscles of this side do not act, and they appear somewhat retracted; the infra-clavicular region is rather prominent, and is resonant on percussion, but the respiration is harsh and bronchial. On the right side, percussion elicits natural resonance—respiration is distinct throughout, but in the infra-clavicular region more loud and puerile.

For the first fortnight after his admission his treatment consisted of generous diet, tonics, and occasional stimuli, which were required by his depressed condition. His general health improved, the febrile excitement ceased; but no diminution of the quantity of pleuritic effusion appearing to take place, he was tapped, and 105 oz. of transparent serum were taken away. On the next day the report was—"Expresses himself much relieved, is able to lie on either side, cough less frequent; percussion now elicits a certain degree of resonance, and bronchial respiration can be heard in several spots anteriorly, but there is no return of vesicular murmur." During the succeeding six weeks, the daily reports record his progressive improvement: the chest contracted nearly an inch, vesicular respiration returned at the apex of the lung, but in no other part. He suffered much from dyspeptic symptoms, had but little desire for food, his spirits became depressed, and he said he knew he should never leave the Hospital alive. At the commencement of the eighth week he was suddenly seized with a fit resembling epilepsy, and died in five minutes.

Sectio cadaveris.—The lung on the right side was of a light colour, distended with air, perfectly crepitant, and studded with minute pearl-like or semi-transparent bodies, closely resembling, in size and distribution, the earlier forms of tubercular deposit. The left lung presented a very different appearance, being much reduced in size, of a very dark colour, generally carnified, containing no air, except at its apex, and covered at its lower three-fourths by false membrane, which was remarkably tough, of a white colour, and nearly a quarter of an inch thick in some parts. The lung was attached to the pleura costalis by long adhesive bands of considerable strength. The pleura contained about 2 oz. of fluid, with small masses of coagulable lymph floating in it, and scarcely presented a vestige of its original structure, being covered on its free surface with large asperities, or papillæ, which gave it a granulated appearance. The heart was small and flabby. The friends would not allow the brain to be examined.

Case 17.—William Sharpe, æt. 38, residing in Wardour-street, a green-grocer, was seen by me, in consultation with Mr. Odling, of Oxford-street, on the 24th of August 1840. He appeared to be a well-made man, but much out of health, and so feeble that he could not leave his bed. He said he had been in good health until the beginning of the month, when he went with his cart into the country, and was there seized with pain in the head and right hypochondrium, with a troublesome cough, which obliged him to return home and to consult Mr. Odling. He was treated in the usual way, without relief. When I saw him, his symptoms were as follows: frequent short cough, shortness of breath on the least motion, with loss of appetite and great depression of spirits. He says he is sometimes seized with paroxysms of difficulty of breathing, which oblige him to sit up immediately in bed: after a while this subsides, and he feels comparatively easy. His inspirations are short, but his respiration is not hurried so long as he lies quiet. The right side of his chest moves very little; the intercostal spaces are well marked; there is no appreciable difference in the measurement of both sides. The right side sounds very dull on percussion anteriorly and posteriorly, nearly as high as the clavicle; no vesicular respiration can be heard in the lung of this side, but a loud blowing sort of breathing can be perceived; there is no ægophony; he can lie equally well on both sides; respiration is puerile on the left side. We agreed on the propriety of introducing the exploring needle: a few drops of serum appeared in the groove. We therefore tapped him immediately, and drew off nearly four pints of clear serum. He was immediately relieved: the wound was closed, and in two days respiration was perceived in the lung, and became more distinct daily. He continued to take a mixture of nitre and carbonate of soda, and on the second week in September he was free from any difficulty of breathing, but had a small quantity of albumen in his urine: this soon disappeared, and in

October the respiration in the right lung was nearly as good as in the left. This patient's recovery was complete.

Case 18.—James Wray, æt. 40, an unhealthy-looking man, residing in Palmer's-village, applied for relief at the Westminster Hospital, on August 25, 1840, with all the symptoms of effusion into the pleura.

He had been employed as an armourer at the Eglinton Tournament, where he earned money enough to enable him to spend the ensuing six months in almost constant intoxication. In this state, about a month ago, he passed a night in the streets, exposed to continued rain. Next day he was attacked with rigors, sickness, and pains in his limbs, which were speedily followed by febrile symptoms, and an acute pain at the upper and anterior part of the left side of the chest, with cough and painful respiration, which confined him to his bed. No treatment was employed; nevertheless, he recovered, in about a week, sufficiently to get about. Ever since that attack he has suffered from dyspnœa on slight exertion. His respiration is now hurried and difficult; he suffers from a frequent short cough, paroxysms of dyspnœa, and great depression of health and spirits; his face is pale and anxious; pulse feeble, frequent, and irritable, 120. The right side of his chest expands much more freely than the left, the intercostal muscles of which scarcely act at all. The left side of the chest gives an uniformly dull sound on percussion, no respiratory murmur can be heard in it; but the respiration on the right side is puerile. Above the fifth rib there is marked resonance of the voice on the affected side, and the punchinello sound in the left axillary region. The infraclavicular region of the left side is prominent; but the intercostal muscles are not so; the apex of the heart beats against the ensiform cartilage, but its sounds are natural.

A fortnight was allowed for the trial of remedies, but no improvement having been made in his condition, the operation of paracentesis was performed on the 9th of September, and 4½ pints of clear straw-coloured serum were evacuated. He expressed himself greatly relieved, and his respiration became much less hurried. Eight hours after the operation his pulse was 100, in the recumbent posture. Respiration 28, skin cool and soft, left side expands more freely than before. Resonance much improved in the upper portions of the chest—still wanting in the inferior part. The air can be heard passing into the lung, as low as the ninth rib, on his taking a deep inspiration. The following day he had a slight return of pleuritic pain, which was relieved by a blister. Towards evening, symptoms resembling delirium tremens came on, and they became so much worse next day, that large doses of hyoscyamus were given him at short intervals, until he was relieved.

September 16th.—His respiration is calm and easy, his general health much improved, cough gone, and he is anxious to resume his work. The chest sounds clearly on percussion, except at the lower third, where there is still dullness. Vesicular respiration is heard in the upper part of the lung; towards the base, the respiration is harsh and bronchial. On the 28th, he was so well as no longer to require medical advice. In the beginning of the following December, he returned to have his chest examined, and vesicular respiration could be perceived, nearly as low as the very bottom of the lung.

Case 19.—Edward Evans was admitted into the Westminster Hospital, in November 1840, under the care of Dr. Burne, with the usual symptoms of inflammatory hydrothorax, and displacement of the heart to the right side. Paracentesis was performed, a few ounces of serum were withdrawn, and a large quantity of fluid remained in the chest. Six days afterwards, the chest was again punctured with a trochar, but not more than 8 ounces of fluid escaped; the greater portion of it having been absorbed during the interval which elapsed between the two operations.

Case 20.—George Cooper, æt. 28, a carpenter, applied to the Westminster Hospital, in January 1841, suffering from effusion into the chest. He was an emaciated, strumous-looking man, and had been constantly exposed by his employment to damp and cold. Six weeks ago, after having been working out of doors, in bad weather, he was seized with rigors, which were soon followed by inflammatory fever, and pain in the right side of his chest, but not of an acute kind. No remedies were employed, and at the end of a week he attempted to resume his work, but found himself unable to do so, from his great debility, and the dyspnœa which immediately followed exertion. He has been gradually getting worse ever since. His respiration is hurried: he now lies on his right side, which is nearly motionless; its intercostals are not prominent, but the infra-clavicular region is remarkably so. The two inferior thirds of this side give a very dull sound on percussion, and no respiration can be heard in any part, except in a small space above the spine of the scapula: there, it is harsh and bronchial. There is no marked resonance of the voice, nor vibratory thrill from speaking. Heart's action hurried, and its sounds occasionally indistinct. He suffers from frequent cough, nightly perspirations, dyspnœa, occasional startings, and a constant distressing feeling of oppression about the heart. Paracentesis was performed a few days after his admission, but a violent paroxysm of coughing, which came on after a small portion of the fluid had been withdrawn, drove the canula out of the wound: 30 ounces only of clear yellow serum were evacuated. Four hours after the operation, respiration could be heard in the upper half of the right lung, but in the lower half there was great dullness, and absence of respiration. His symptoms improved for a fortnight, but then remained stationary; on examination, it was found that fluid still remained in the pleural cavity. The operation was again performed, and 25 oz. of serum, similar in quality to the last taken, were abstracted.

From that time he improved rapidly. Respiration became audible in every part of the chest, but it was more bronchial at the lower than at the upper half of the right lung. He had no return of the disease. In this case, as in the majority of the others, air entered freely into the pleural cavity, during the operation, but no bad effects followed.

Case 21.—William Crichton, æt. 34, a very pallid, delicate-looking man, was seen by me, in consultation with Mr. Beck, of Marylebone-street, on the 10th of February 1841. We found him labouring under all the symptoms of pleuritic effusion. He said that he was a man of regular habits—that a fortnight ago he had been attacked with acute pain of the right side of the chest, without any well-marked febrile symptoms: his breathing had become short, and he had lost his strength. On examination, we found the right side of the chest very dull on percussion, and without any sound of respiration, except in a small space between the scapulæ. I recommended the removal of the fluid by tapping; but Mr. Beck, who had seen the nature of the case most clearly from the first, and who had been exhibiting mercury in small doses, with diuretics and local counter-irritation, wished to give these remedies a little further trial; his dyspnœa, however, became greater, and his strength more reduced; the operation, therefore, was performed on the 17th of February, and 3½ pints of clear yellow serum were drawn off: some flakes of coagulated matter appeared in the last portions. Immediately after the operation, he was seized with a paroxysm of coughing, but when it was over he said he felt much relieved. Four hours after the operation his respiration had become easy, and some air could be heard entering the right lung: his pulse remained quick and fluttering.

April 10th.—Respiration much more evident, especially at the posterior part of the affected side.

April 21st.—Respiration audible over the whole of the right side of the chest, but the vesicular murmur is not everywhere distinct: some dullness on percussion still remained, but not sufficient to make us believe that fluid had again been effused. His general health was rapidly improving; no contraction of the chest took place. In this case, the prominence of the infra-clavicular region on the affected side was well marked, but no protrusion of the lower intercostals existed. This man was admitted into the Westminster Hospital, some time after the operation had been performed, for sciatica, and there was then no evidence of his pleuritic disease.

Case 22.—April 30th, 1841.—J. Rodwell, æt. 58, residing at 7, Richard-street, Liverpool-road, applied to Dr. Frederic Bird, with symptoms of effusion into the chest. He was a porter by occupation, of temperate habits, and, previously to his present illness, had enjoyed good health. His countenance expressed great anxiety; his colour was pale—the conjunctivæ blanched; he was unable to lie on the left side, and for a short time only on the right. Dyspnœa was caused by the slightest exertion. He coughed frequently, but seldom expectorated—he had febrile accessions every evening. Pulse 90, feeble and irritable. Percussion elicited a dull sound over the whole of the left side, excepting the part immediately below the clavicle, where there was some resonance. In this situation, respiration could be heard, but it was absent in every other part of that side of the chest; no vocal resonance could be perceived. On the left side, respiration was puerile, and percussion was natural. Three weeks before, he had been attacked by febrile symptoms, followed by cough, dyspnœa, acute pain of the right side of the chest, aggravated by taking a full inspiration, together with all the ordinary symptoms of pleurisy. Leeches were applied to his chest, internal remedies were given him, and his more urgent symptoms were relieved, but he continued to suffer from cough, frequent attacks of dyspnœa, and great prostration of strength; he was, however, considered cured by his medical attendant, who attributed his cough and difficulty of breathing, to weakness. The ordinary treatment was adopted by Dr. Frederic Bird, and continued up to the 29th of May, when his health appearing to be improved, but no diminution having taken place in the quantity of the effused fluid, a small, very fine exploring trochar was introduced; pus appeared, and paracentesis was performed with a trochar of larger size, but still a very small one; 90 ounces of thick, and not unhealthy-looking pus were removed—the first few ounces passing through the canula with considerable force. A large quantity of air passed into the chest towards the end of the operation, during a violent fit of coughing, but no inconvenience resulted from it: the pulse scarcely rose at all. The relief afforded was very great. Coarse respiration could be heard anteriorly, as low down as the third rib, immediately after the evacuation of the fluid, and he was able to lie on his left side. On the next day, 30th of May, respiration was more distinct, and could be heard as low as the fifth rib: his appearance, also, was much improved. On the 5th of June, he was able to go out, but respiration had not returned at the lower third of the lung, and the right side of the chest appeared contracting. His convalescence was retarded by an attack of bronchitis, from which he suffered severely for some weeks; but in August he was sufficiently recovered to resume his employment. His chest was then somewhat contracted at the lower part of the right side. Respiration could be heard distinctly over the upper two-thirds of the right lung, where it was almost natural, but over the lower third it was absent. In the November following, he was in perfect health.

Case 23.—L. R., æt. 17, of a scrofulous diathesis, applied for medical advice to Dr. Frederic Bird, in November 1842. She was then suffering from diarrhœa, with tympanitis, and recovered slowly, by the use of ordinary remedies. Her chest was examined at this time, and the apex of the right lung was found duller on percussion than that of the left. The respiration was less distinct on the right than on the left side; but there were no unnatural sounds. In February 1843 she began to complain of some difficulty of breathing, and slight cough, but without expectoration. The whole of the right side of the chest was then dull on percussion, particularly at its inferior two-thirds. Respiration was inaudible everywhere, except at the apex; there it was harsh, distant, and tubular. There was no ægophony, but there was increased resonance of the voice at the apex of this lung, and some crepitation after a deep inspiration. For six weeks, the ordinary remedies were employed, but without success; when, finding that her general health was beginning to be impaired, Dr. F. Bird punctured the chest with a trochar, between the fourth and fifth ribs, and drew off three pints of serum, which afforded her great relief: air entered the chest during the operation, but it produced no inconvenience. The lung did not expand immediately after the withdrawal of the fluid, but on the second day respiration could be heard all over the superior two-thirds of the lung affected, but at the apex it was still deficient and harsh, with some crepitation. Notwithstanding the employment of general remedies, of which counter-irritation formed the most important part, the fluid again accumulated, and on the 12th of July she was tapped again, and three pints of serum were evacuated. The chest gave the same physical signs after this, as after the first operation. On the 25th of August she was tapped a third time, and four pints of fluid were evacuated, which was slightly turbid. Diuretics, iodine, and mercurials, had been used in the interval. On November 20th she was tapped the fourth time, there being evidence of a still larger quantity than before having accumulated; and the intercostal spaces, which until now had not been prominent, having become much distended. Six pints of thick pus were removed, by a large trochar, with very marked relief. No expansion of the lung appeared to take place, but in a few days the thoracic parietes began to contract. Nearly five months have elapsed since the last operation was performed; no fluid accumulated after it: but little or no respiration can be heard in the lung; the patient, however, appears to breathe freely, and looks well. The right side measures one inch less than the left; the intercostals are retracted, and act but little during inspiration. The remedial measures employed after the last tapping were chiefly dietetic; small quantities of animal food were given at short intervals, and good air and moderate exercise were recommended; five grains of blue pill were given every night, until the gums had become slightly affected.

Case 24.—B. Donovan, æt. 38, was admitted into the Westminster Hospital, on the 16th of January 1844, with marked dullness below the right clavicle, and symptoms of rather acute bronchitis, which were so much relieved by cupping, and conium with ipecacuhana, that he was able to be up on the 24th. On the 28th, a slight tinkling sound was heard on the left side of his chest for the first time, and when he spoke, his voice appeared like the ringing of a vibrating glass, or as if he was speaking into a bottle. The inferior part of this side of the chest was very dull on percussion, and respiration was there inaudible. The peculiar sounds were loudest about the inferior angle of the scapula, and were much more distinct at some times than at others, but occasionally the amphoric speaking could not be heard at all. The first week in March, the dullness on the left side reached nearly as high as the nipple, above which the chest was tympanitic. This side measured three-quarters of an inch more than the other, and no respiration could be perceived in it. The pulsation of the heart was felt a little to the right of the sternum. I passed a grooved needle, and perceiving some drops of fluid escaping, I drew off fifty-six ounces of turbid serum, with a small trochar; this afforded great relief to the dyspnœa. On the 12th, the difficulty of breathing returned, when I requested Dr. Edwin Harrison to see him. The left side of the chest was tympanitic above the nipple, and very dull at its lowest part; it appeared more prominent, and measured half an inch more than the right. Respiration was strong, but not expansive nor vesicular, above the nipple, and distant below it; slight amphoric breathing could then be perceived. On the right side there was marked dullness under the clavicle, and above the spine of the scapula, which decreased gradually downwards, until it became clear and emphysematous. Under the clavicle there was strong resonance of the voice, with a sound of air rushing in. He became worse by degrees, his countenance more anxious, and breathing more oppressed. The left side of the chest, generally, sounded preternaturally clear. Respiration was inaudible posteriorly on that side, below the angle of the scapula; and when he took a full inspiration, a splashing sound was heard, as if a drop of water had fallen from a height into a metallic basin. To relieve his breathing, Mr. Phillips tapped him with a small trochar, and drew off about 7 ounces of green serum: a piece of bougie was left in the wound, at my request, in order to keep it open. He was very little relieved, and, despairing of his recovery, he left the hospital, and died at home on the 27th.

Sectio cadaveris, forty-eight hours after death.—The anterior part of the left side was tympanitic on percussion. On cutting through the cartilages of the ribs of that side, highly fœtid gas escaped. On removing the sternum, the left pleural cavity appeared, at first sight, empty; about a pint of sero-purulent matter lay at the bottom of it—and the lung, reduced to a size little more than that of the closed hand, appeared to be bound down to the spine, but on examination it was found to adhere posteriorly only. On introducing the nozzle of a pair of bellows into the left bronchus, the lung was found permeable to air, and could be dilated to about three-fourths of its usual healthy size; but it soon collapsed, with a sound similar to that of air escaping from a small orifice. A minute aperture, about the size of a pin's head, with ulcerated edges, was discovered on the anterior surface of the lung, near its apex, through which air escaped. The opening communicated with a tubercular mass, lying near the surface of the pleura, about the size of a walnut, which had been partially excavated, and into which a bronchial tube opened. There were a few smaller tubercular masses near the apex. The lung itself was congested with blood, firm on pressure, and of a deep red colour. We were not permitted to examine the body further.

ACCOUNT OF A CASE
OF
EMPYEMA,
WHICH RECOVERED AFTER REPEATED PUNCTURES OF THE PLEURAL SAC.

By THEOPHILUS THOMPSON, M.D.,
VISITING PHYSICIAN TO THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.

READ APRIL 23RD, 1844.

Although a collection of pus within the pleural sac is by no means an infrequent occurrence, there is much variety of opinion respecting its appropriate treatment; and it is therefore desirable to record every case the details of which may tend to establish definite rules of practice.

In the summer of 1843 I was requested by Mr. Robarts, of Great Coram-street, to visit with him a little boy, between five and six years of age, of slender frame, but good constitution, who had been placed under his care about two months previously. At that time his symptoms were loss of appetite and strength, interrupted sleep, a rapid pulse, and other febrile affections, which did not yield to treatment, and in about a fortnight became associated with a short cough and pain of the right side on moving.

The respiratory murmur on this side was deficient, and the sound elicited by percussion dull. Leeches and a blister had been applied, and a course of calomel adopted, but without any satisfactory result.

When I first saw the patient, on the 25th of June, I found him much reduced in flesh and strength, lying on the right side, breathing rapidly, with a hot skin, quick pulse, much thirst, and scanty urine.

On admeasurement, this side was found about an inch larger than the left: its intercostal spaces prominent, the sound yielded by percussion dull, and the respiratory murmur inaudible almost as high as the clavicle. Mercurial ointment, quinine, and decoction of chimaphila, were tried for a few days.

On the 27th, the urine was slightly increased in quantity, but the effusion into the chest was apparently greater, the respiration rapid, and the strength declining. The apex of the heart was felt beating beyond the line of the nipple, and the effusion was obviously too considerable to authorize any expectation of its being absorbed through the influence of medicine.

With a view to obtain an absolute demonstration of its existence and nature, an exploratory needle was introduced into the side at the most prominent part; and pus having been observed in the groove of the instrument, the operation of paracentesis was at once performed.

An incision was first made through the stretched skin, in order to secure a valvular aperture; a hydrocele trochar was then introduced through the fourth intercostal space, and fourteen ounces of greenish-yellow pus were withdrawn, pressure being at the same time made from below upwards, as recommended by Dr. J. C. B. Williams, with a view to assist in accommodating the chest to its diminished contents. Owing to the thickness of the matter, the introduction of the probe through the canula was occasionally necessary to remove obstructions. When the above-mentioned quantity of fluid had been removed, the canula was withdrawn, the wound carefully closed, and a bandage applied.

The mercurial ointment and decoction of wintergreen were continued, and two grains of iodide of potassium, with five of tartarized iron, administered twice a-day. The boy was much relieved by the operation, slept better, and the urine increased in quantity. The respiratory murmur, blending with the rubbing sound of the surfaces of the pleura, could be heard between the second and third ribs of the right side.

On the 30th of June, the number of the respirations was 50 in a minute, and the right side of the chest measured half an inch less in circumference than before the puncture; but, as the respiratory murmur was becoming less distinct between the second and third ribs, it was judged expedient to repeat the operation.

The trochar was introduced about an inch behind the former cicatrix; the skin having been drawn downwards, to secure its acting subsequently as a valve. About a pint of matter was withdrawn, which was not fœtid, but thicker than on the first occasion, and requiring the use of the probe to remove obstructions. The flow was promoted whenever the patient uttered any exclamation. The ointment and medicine were continued.

This operation was succeeded by marked relief: the number of respirations in the minute being, on the 2nd of July, reduced to 40, the sound on percussion becoming clearer, and the respiratory murmur audible as far as the fourth rib, and the patient's strength improving.

After this date, however, notwithstanding the continued use of wintergreen, iodide of potassium, citrate of iron, and mercurial ointment, the dullness of sound on percussion again extended; the respirations were increased to 56 in a minute; irritable cough returned, and the state of the patient became altogether less favourable.

On the 10th of July, a full-sized trochar was introduced between the fifth and sixth ribs, and twenty ounces of pus were removed. The pulse improved as soon as the chest was relieved. The next day respiration was audible down to the fifth rib, without any friction sound in the pleura, and the dull sound on percussion was confined to a circle, about two inches in diameter, surrounding the puncture. The patient was now allowed a more liberal diet; and, in addition to the other remedies, half a grain of calomel was given every night and morning.

In a few days, however, the breathing again became hurried, and the other signs of effusion increased;

and, on the 21st of July, it was deemed necessary to perform the operation for the fourth time. Without previously drawing down the skin, the trochar was introduced in the sixth intercostal space, an inch anterior to the last puncture, and twenty-two ounces of thick matter were rapidly removed. The patient was directed to take a powder of calomel and quinine, and a draught containing ammonia, twice a-day; but the powders were withdrawn two days afterwards, on account of intestinal irritation.

During the following week he improved in strength; the average number of the respirations was less than 40, of the pulse 100 in a minute, and the excess in girth of the right side of the chest, over the left, was only half an inch.

On the 27th, there was a little inflammation of the skin, near the puncture, which, although for some days perfectly healed, on the 28th re-opened spontaneously, and within twenty-four hours gave exit to about four ounces of pus.

After three days, the discharge ceased; but above the site of the two last punctures a swelling was found, about two inches in length, at the posterior end of which an aperture discharging matter appeared, whilst the anterior orifice closed.

On the 16th of August, both openings were discharging, the anterior spontaneously, the posterior when pressed; and the latter orifice assumed a caruncular appearance. The pectoral and general symptoms had abated. Dullness of sound on percussion was limited to a circle about two inches in diameter, around the anterior opening; the right side of the chest moved in respiration, and was rather less than the left. The improvement in the local condition was accompanied with general amendment of health, so that, in the month of September, the patient was enabled to walk out. The contraction of the right side of the chest proceeded till the month of November, when it measured an inch and three-quarters less than the left; but subsequently the right side again increased, till the difference was reduced to an inch. In December, the discharge, which had previously averaged two ounces in twenty-four hours, was reduced to an ounce, and after the application of ung. hydr. nitr. ox. to the opening for a few days, ceased altogether, but returned on the discontinuance of the ointment.

It was obvious, on the one hand, that any attempt to close the orifice would lead to injurious results, and on the other, that the fistulous opening might remain for life, unless some measure could be adopted to effect the gradual but complete emptying of the sac, and the approximation of its sides. We therefore determined cautiously to dilate the opening, and with this view Mr. Robarts prepared a plug, consisting of a piece of sponge, which had previously been firmly tied round with packthread, and saturated with wax.

This plug was introduced at night, on the 31st of December, and when removed on the 2nd of January, was followed by a copious discharge of pus. In a few days, the aperture having again contracted, another plug was introduced, and the next day withdrawn, when about six ounces of pus were discharged in a jet.

As the results of this plan proved so encouraging, the plug was again introduced on the 22nd of January, and removed the next day, when half an ounce of matter, still inoffensive, was removed. Mr. Lane, who was so obliging as to examine this matter for me, with the microscope, reported as follows:—"The fluid appears to be a very perfect and genuine specimen of pus, the globules peculiar to that fluid are remarkably distinct and unbroken."

After this period, there was no fresh discharge, the orifice permanently healed, and the boy has remained perfectly well.

Several reflections naturally arise from the consideration of the facts now related.

Serous effusion into the pleura, when not highly albuminous, is frequently removed with little assistance from medical treatment; but in cases of pyothorax of any extent, we have no reason to expect a favourable issue, unless decided measures are adopted.

It becomes, therefore, an important question whether we should attempt the removal of the effusion by the use of medicines believed to promote absorption, or have early recourse to the operation of paracentesis.

In the instance now recorded, mercury was for a time employed, because it has been recommended in such cases, on high authority; but it was used in vain; and probably that medicine will generally prove useless, and even injurious, when pus in any considerable quantity is effused into the pleural sac.

Iodine and other remedies are not likely to be more efficacious; and, therefore, whenever there are clear evidences of such effusion interfering with respiration and nutrition, the operation should be promptly performed.

When the fluid effused is serum, the whole quantity, although amounting, as in a case described by Dr. Archer,* even to eleven pints, may possibly be removed at once, without detriment; but as the present case was considered one of true empyema or pyothorax, with the lung probably condensed, it was thought safer to remove only a portion of the matter at one time, and to repeat the operation as occasion might require—a precaution strongly recommended by the experience of Dupuytren.

We left no canula in the wound after the operation; believing that, in such cases, the admission of air, especially if long continued, has a very injurious tendency. In an instructive example, which Dr. Stroud has related,† the use of a canula was followed, in about a week, by a change of the secretion from serum to pus, which, after a few days, assumed a very fœtid character, and the patient, although young, and otherwise not in hopeless circumstances, died. Similar results have followed the adoption of the same measure, in other instances, as in an interesting example described by Dr. Brugnon.*

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* Transactions of King's and Queen's Coll. of Physicians, vol. i.

† Medical Quarterly Review, vol. i. p. 184.

It is an instructive fact, and corroborative of the opinion now offered, that the result has been favourable, in a very large proportion of instances, several of which are related by Le Faucheux, wherein a fistulous opening has formed, either spontaneously or in consequence of an operation; the favourable progress of such cases having been, apparently, attributable to the difficult transmission of air through the fistula.

Some patients have, it is true, recovered, notwithstanding the employment of the canula in the manner here deprecated; but a measure may be hazardous, without being necessarily or uniformly fatal; and where the lungs have been free from disease, it is difficult to discover other causes for the frequently unhappy results of the operation, except increase of the pleural inflammation, and decomposition of the enclosed matter, owing to the long-continued contact of atmospheric air.

Puncture of the thorax involves no circumstance of peculiar hazard; in the present example it was repeated four times with invariable relief, and without a single untoward circumstance—and when performed with proper precautions, it would be difficult to adduce instances of a contrary character.

A diversity of opinion has existed regarding the appropriate treatment of fistula following empyema. Some practitioners have recommended the injection of various liquids into the pleural sac; but an aggravation of the symptoms has frequently been the result. In a case detailed by Audouard, an increase of the quantity, and deterioration of the quality, of the effusion appeared to be produced by injections, although bland and unirritating. Attempts to produce cicatrization of the fistulous opening have proved even more detrimental; a truth well illustrated by Wendelstadt and Audouard, and confirmed by the present example. Such fistulous openings, when left to themselves, may remain for years, or even for life, as occurred in the person of Dr. Wendelstadt himself, in whom, after the lapse of many years, the cavity was large enough to contain a quart of fluid.*

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* "Giornale per servire ai progressi della Patologia," t. ix. fasc. 25. 1838.

A suppurating cavity, when of long duration, will continue to secrete pus, and its walls will not readily adhere. It is therefore very desirable to promote the gradual contraction of such a cavity; and this object was in the present case happily effected by the plan which Mr. Robarts judiciously conducted.

I cannot close this communication without remarking that it affords a striking illustration of the insidious manner in which empyema may occur, as well as of the precise and valuable diagnosis furnished by the physical signs of disease.

* Beschreibung eines Hydroth. Saccatus. Journal der Practischen Heilkunde, Band 72, p. 72.

OBSERVATIONS

ON

THE OMENTAL SACS

WHICH ARE SOMETIMES FOUND IN

STRANGULATED HERNIÆ,

COMPLETELY ENVELOPING THE INTESTINE,

WITH CASES AND DISSECTIONS.

TO WHICH HAS BEEN ADDED,

A TABLE OF ALL THE STRANGULATED HERNIÆ OPERATED ON AT ST. GEORGE'S HOSPITAL, IN 1842-43.

BY PRESCOTT HEWETT, ESQ.,

CURATOR OF ST. GEORGE'S PATHOLOGICAL MUSEUM.

READ MAY 14TH, 1844.

IN an operation for strangulated hernia, the intestine is not unfrequently found surrounded by omentum, which, at first, appears to form a second sac; with a little care, however, the omentum may be unfolded, and the intestine thus easily laid bare. But the cases in which the intestine is contained in a *complete sac*, formed by the omentum, which it is *absolutely necessary* to *divide*, to reach the gut, have, it appears, been rarely met with. Few opportunities have therefore been afforded for examining, either the nature of these sacs, or the difficulties to which they may give rise, in an operation.

That these sacs may, in an operation for strangulated hernia, become the source of very great difficulties, is proved by the cases and dissections which follow these observations; and by the subjoined quotations, from two of the first authorities on hernia, it will be seen how these difficulties have hitherto been considered.

"It is stated, but I have never seen it, that the omentum is sometimes the cause of stricture, by enveloping the intestine, and becoming thickened around it. Such an occurrence is possible, and ought to be looked for, and, if found, the stricture will be easily divided."*

"Instances have occurred, in which the omentum has formed a complete bag, including a portion of intestine: in such a case it must be sufficiently divided to expose the gut."† This author does not mention any case of his own, but quotes Richter, and adds, that two cases related by Mr. Hey seem to have been, in some respects, of this kind.

On referring to the cases related by Mr. Hey, it will be seen, that in neither of them can it be said that the omentum formed a *complete* bag, including a portion of intestine; in the first case,‡ the omentum appears to have been attached to the ring, and to the bottom of the sac, lying over the intestine, and surrounding it: there was no *necessity* for *dividing* this membrane to reach the intestine, which was laid bare by simply lifting up the omentum. In the second case,* omentum only was found in the hernial sac, to which it was adherent; no aperture could be found leading into the abdomen: the sensations of the patient led to the supposition that the gut had slipped up at the time of the operation; but this is mere conjecture.

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* Sir A. Cooper, fol. edit., 1804, p. 31.

† Mr. Lawrence, fifth edit., p. 309.

‡ Hey, Pract. Observ. 3rd edit., p. 214.

Richter† even does not mention any *cases* of these omental sacs, which he merely states exist sometimes. He advises that, in such cases, Ledran's directions, of making an incision in the anterior part of the omentum, and then reducing the parts, should be followed; but such a case, adds Richter, occurs, most probably, very rarely.

In neither of these authors is it mentioned that the neck of these omental sacs may sometimes become the *sole* cause of strangulation.

These sacs have been found in the three most common forms of hernia; but it is in the umbilical hernia that they have been generally observed; the relative situation of the intestine and the omentum, in the abdominal cavity, will easily explain this fact.

Complete omental sacs were found in four cases out of thirty-four operations for strangulated hernia, performed at St. George's Hospital in 1842-43; of these four cases, two were femoral, one inguinal, and one umbilical. The formation of these sacs is attributed, by Richter, to the firm agglutination of the margins of the omentum which has surrounded the bowel. To this explanation of Richter's, which does not appear to be applicable to the majority of cases, the two following explanations of the manner in which these sacs are, in some cases, formed, have been added.

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* Hey, Pract. Observ., 3rd edit., p. 217.

† Traité des Hernies, p. 133.

1st. The gut, *completely enveloped* by the omentum, passes through the ring, and the omentum thus disposed round the intestine, becomes attached to the circumference of the neck of the hernial sac; this omental pouch is subsequently distended by the intestine, and thus forms a complete lining to the hernial sac.

2nd. An epiplocele takes place, and the portion of omentum which is protruded becomes altered in structure, and its folds firmly united to each other by the effusion of lymph; but, within the abdominal cavity, in the neighbourhood of the ring, the folds into which the omentum has been drawn may not be agglutinated; they will thus leave spaces into which a knuckle of intestine may insinuate itself, pass through the ring, and form for itself a bed in the altered mass of omentum which is in the hernial sac. It may happen, that two or three portions of gut may slip into the different spaces left between the folds of the omentum, and subsequently form for themselves separate pouches. Several separate sacs, with narrow necks, may be thus found in the omental mass which is in the hernial sac.

Once formed, these sacs may attain an immense size. In Case 4, the sac measured six inches in length, and eleven inches in circumference, at its broadest part.

The omentum in which a sac has been formed may, in the course of time, especially if it is irreducible, become altered in structure, either by the effusion of lymph, or by a deposition of fat which takes place in the walls of the sac.

By this alteration of structure the thickened sac may, in an operation, become the source of very great difficulties. In Case 4, it will be seen that so great was the accumulation of fat in the layers of the omentum forming the sac, that its walls were, in some places, more than an inch thick. In this case the deposition of fat had principally taken place towards the lower part of the sac; at its neck the omentum was but slightly altered in structure. The incision made at the time of the operation corresponded to this part of the omentum, so that, when the hernial sac was laid open, the gut appeared to be covered merely by a band of omentum, which was easily divided, and the gut reduced; after which the sac was ascertained to be, with the exception of this slightly thickened band of omentum, quite empty; but no satisfactory explanation could be given of the nature of the thickened mass which still remained in the scrotum. A careful dissection, made at the *post-mortem* examination, proved that this mass consisted of the thickened omental sac, above referred to.

These omental sacs may either lie loose in the cavity of the hernial sac, or the two sacs may have contracted more or less extensive and firm adhesions with each other. In Case 3, the omental sac was quite free from adhesions; in Case 2, the two sacs adhered firmly to each other at the neck, in the whole of their circumference; and in Case 4, the two sacs were firmly united to each other, throughout their whole extent, by a fine, close, cellular tissue.

The above cases naturally give rise to a question of great practical importance, as to what course ought to be pursued where the hernial sac appears to contain thickened omentum only. In such cases the omentum ought to be drawn out and carefully examined, to see that it does not form a sac containing a portion of intestine. If the omentum is thickened, and firmly united to the neck of the hernial sac, throughout its whole circumference, a longitudinal incision should be carefully made in the whole length of the thickened omentum, to ascertain that it does not form one of these omental sacs. The enormous thickness which the walls of an omental sac may present, must here be borne in mind. The precaution of introducing the finger to ascertain that the neck of the sac is free, is, in these cases, particularly necessary.

The intestine contained in an omental sac may be united to its internal surface. In Case 1, the intestine was firmly united to the neck of the omental sac; in the three other cases, the intestine was free from adhesions.

The neck of an omental sac may become the *sole* cause of strangulation: of this, Case 3 is a well-marked example. In this case, Mr. Hawkins was obliged, after having freely divided the neck of the hernial sac and the ring, to divide the neck of the omental sac before the gut could be reduced. Had the practice of reducing the hernia, without opening the hernial sac, been followed in this case, the gut, still strangulated by the omental sac, might have been reduced, and a fatal termination been the consequence. Such cases as these are a strong argument against the practice of reducing a hernia without opening the hernial sac.

The division of the neck of these omental sacs may be followed by hæmorrhage, as in Case 2. The arteries of a portion of omentum which is hypertrophied and altered in structure, are sometimes so much enlarged that they may become a source of alarming hæmorrhage. Richter mentions a case in which an enlarged omental vessel poured out about ℥vj of blood in a few seconds. Particular attention should be paid to this point of practice, as the greater part of the blood may, from the situation of the divided vessel, at the neck of the sac, be poured into the cavity of the abdomen. In the above-mentioned Case, No. 2, the hæmorrhage, which occurred after the division of the neck of the omental sac, was but slight, and soon stopped; but at the *post-mortem* examination, a large patch of blood was found in the folds of the omentum, within the abdominal cavity, in the neighbourhood of the ring.

In conclusion, the occurrence of these omental sacs points out the importance of *carefully* examining every portion of omentum which is in a hernial sac, so as to ascertain that no knuckle of intestine is contained within its folds, before it is returned into the abdomen, left in the sac, or removed altogether.

Case 1.—Bowel contained in a complete sac formed by the omentum.

Maria Snell, æt. 60, was admitted into St. George's Hospital, under the care of Mr. Cutler, on the 28th of December 1843, at 5 P.M., with symptoms of strangulated umbilical hernia: the symptoms, however, were not very urgent. She had been subject to hernia for the last thirty years, for which she had worn a truss, until within the last five or six years, when the hernia became irreducible, and then increased in size; from that time she has been subject to habitual constipation, accompanied by colic, and occasionally by inflammation of the bowels. Four days ago, after a fit of coughing, the tumour suddenly increased in size; the symptoms of strangulation came on on the first day, and have been gradually increasing.

Purgative medicine, a warm bath, and the taxis, were tried in vain; and, five hours after the admission of the patient, Mr. Cutler, finding that the symptoms were increasing, determined upon operating.

The sac, which was very thin and adherent to the skin at the anterior part, was laid open: in it was contained a portion of the large intestine, enveloped by the omentum, which formed a complete bag; these parts were firmly adherent to the umbilical ring at the right side: they were but slightly altered in colour. The stricture and neck of the sac were divided, and a portion of gut reduced; the omentum and portion of adherent intestine were left in the sac.

The symptoms of strangulation were relieved by the operation; but the following morning, peritonitis, of a low character, made its appearance. She was put upon calomel, with salines and laudanum every four hours. The symptoms of peritonitis went on increasing, and she died thirty-seven hours after the operation.

Examination 56 hours after death.—The skin of the umbilical region was, at the anterior part, closely adherent to the hernial sac, which contained a large portion of omentum and about four inches of the transverse colon; the omentum, in which a large quantity of fat had been deposited, formed a second sac, completely enveloping the intestine, which was partially but firmly united to it; the omental sac was adherent to the right and inferior part of the ring, which was quite free at the left and superior part. The gut and omentum contained in the sac presented but slight marks of increased vascularity. The cavity of the peritoneum contained some dark-coloured fluid. The small intestines and the right portion of the large intestine, not contained in the hernial sac, were enormously distended with flatus, the left portion of the large intestine was contracted.

The cæcum and ascending colon were, in many places, united to the convolutions of the small intestine by patches of recently-effused lymph: these patches, which corresponded to similar ones on the mucous surface of the large intestine, were surrounded by a minute net-work of vessels; there were no ulcerations. The other portions of the intestinal canal presented nothing remarkable.

Case 2.—Bowel contained in a complete omental sac.

Elizabeth Baker, æt. 65, was admitted into St. George's Hospital, under Mr. Tatum, on the 3rd of June 1843, at 1 A.M., with a strangulated femoral hernia, on the left side; all the symptoms of strangulation, which had existed about three hours, were well marked. She had been subject to hernia for some years. The taxis, which had been previously applied by a surgeon, was again tried by the house-surgeon, but unsuccessfully.

Mr. Tatum operated an hour after the patient's admission. The sac was laid open, and in it were found a portion of omentum and a knuckle of small intestine. The omentum, which formed a complete sac enveloping the intestine, was so adherent to the neck of the hernial sac that a director could not, at any point, be passed between these parts; the omental sac was therefore laid open, and the stricture and both sacs were then divided, after which slight hæmorrhage occurred, but it soon stopped; the gut, of a darkish colour, was easily reduced; the omentum was removed, after the application of two ligatures, each embracing one half of the whole mass.

All the symptoms of strangulation were relieved by the operation; the bowels acted copiously after a dose of castor oil. Towards the evening she was very feverish, and shortly afterwards became perfectly comatose, in which state she continued until she died, about twenty-four hours after the operation.

Examination twenty-four hours after death.—Extensive peritonitis, accompanied by an effusion of a slightly plastic character. The omentum, which passed through the left femoral ring, was firmly adherent to the whole circumference of the neck of the hernial sac; here, in its folds, were the remains of the pouch which had contained the bowel, and a large patch of recently-effused blood; the pouch was traced into the hernial sac, where the remaining portion of the omentum, with the two ligatures which had been applied, was found. The portion of bowel which had been strangulated presented nothing but a slight discolouration.

Three or four small oval tumours, of an encephaloid nature, and connected with the left side of the falx, were found pressing upon the brain. In the left optic thalamus were the remains of an old apoplectic effusion.

It was subsequently ascertained that this patient had had, six months before her admission into the hospital, an attack of apoplexy, followed by hemiplegia of the right side, from which she had nearly recovered when the gut became strangulated.

Case 3.—Bowel strangulated by the neck of an omental sac.

Mary Canty, æt. 35, admitted into St. George's Hospital, under Mr. Hawkins, on the 20th of March 1842, at 8 P.M., with urgent symptoms of strangulated hernia. The rupture, which occupied the right femoral ring, had been down four days, since which time the symptoms had been gradually increasing; the taxis had been applied, for some time, by a surgeon. She had been subject to hernia for the last three months, but had always, hitherto, been able to reduce it without difficulty, and had never worn a truss. Bleeding, a warm bath, and the taxis, were again tried, but without success.

Mr. Hawkins operated, an hour after the admission of the patient. The sac, which was very thin, was laid open, and in it was found a large mass of omentum, somewhat altered in structure. The neck of the sac and Gimbernat's ligament were divided, so that the finger could be easily introduced into the abdomen. The omentum was then carefully examined, and a knuckle of small intestine, of a very dark colour, was seen through its folds, which formed a complete sac; this omental sac was laid open, but before the intestine could be returned, it was found necessary to divide the neck of this second sac, which formed a very tight stricture; the intestine was then easily reduced, but the omentum was kept in the hernial sac.

The symptoms were relieved by the operation, but on the following day she had a sharp attack of peritonitis, which was treated by leeches, calomel and opium, and salines. On the third day after the operation, some fæculent discharge was passed by the wound; this discharge increased, and continued for five days, after which it ceased. The wound then put on a healthy appearance, and was completely healed within a month after the operation.

Case 4.—Bowel contained in a large sac, with parietes of an inch thick, formed by omentum hypertrophied and altered in structure.

Charles Emmett, æt. 42, admitted into St. George's Hospital, under Mr. Cutler, on the 3rd of April 1843, with a strangulated scrotal hernia, on the right side. The tumour, of an enormous size, very heavy, hard and smooth, was pyriform, and appeared to contain a large quantity of fluid: the testicle was evidently at the lower part. The symptoms of strangulation had existed three days. He had been subject to hernia, which hitherto had caused him but little inconvenience, for the last three years: had never worn a truss.

Bleeding, a warm bath, and the taxis, were tried, but without any effect. As the symptoms were increasing, Mr. Cutler operated. The stricture was divided, and an attempt made to reduce the hernia without opening the sac, but unsuccessfully: the sac, which was very thick, was then laid open, and about a pint and a half of bloody fluid escaped. The gut, of a very dark colour, was covered by a band of omentum, slightly altered in structure, which adhered to some part of the sac. It was found necessary to divide this omental band before the gut, about five inches of the small intestine, could be reduced. With the exception of the band of omentum, the sac was ascertained to be quite empty; but this side of the scrotum still remained much larger and heavier than that of the opposite side. The testicle, of its natural size, could be easily felt at the lower part of the scrotum.

The symptoms of strangulation were relieved by the operation, but on the following day he was attacked by peritonitis, of a low character, for which he was put upon calomel and opium. The peritonitis went on increasing, and he died about thirty-six hours after the operation.

Examination 34 *hours after death.*—Abdomen tympanitic. The peritoneum was extensively inflamed, and covered with recently-effused lymph, slightly uniting the convolutions of the intestines to each other. The small intestine, near its termination, was of a dark mahogany colour; this discolouration existed in all the coats, but the parts were neither thicker nor softer than natural; the discoloured portion of intestine measured about five inches; its corresponding mesentery was very much inflamed, and presented large dark patches, looking like effused blood.

A portion of omentum, not much altered in structure, but presenting a puckered appearance, was traced through the internal abdominal ring into the scrotum, where it became very much thickened, and thus formed the large tumour which had been observed during life. On laying open the tumour, from the scrotum up to the internal abdominal ring, it was found to consist of a large pouch, with thick parietes, in which the intestine had been lodged. At the time of the examination, the cavity of this pouch, which at the internal abdominal ring opened into the cavity of the peritoneum, was filled with serous fluid and large masses of lymph; its internal surface, presenting an irregular and convoluted appearance, was of a bright red colour, and covered, in many places, with thick layers of recently-effused lymph adhering to it. This pouch was of a pear-shape, with a very narrow neck, corresponding to the inguinal canal: it measured six inches in length, and eleven inches in circumference, at its broadest part; its parietes, more than an inch thick in many places, were completely formed by the folds of the omentum, in which large quantities of adipose tissue had accumulated; this accumulation of fat had, for the greater part, taken place below the neck of the pouch; at the neck, in which Mr. Cutler had made his incision for releasing the strangulated intestine, the thickened omentum did not exceed a line and a half in depth. The outer surface of this enormous omental sac was quite smooth, and, below the constriction, adherent throughout to the hernial sac, which was very much thickened, and of a fibrous appearance; these two sacs had, towards the upper part, become so firmly united to each other, that they could not be separated: at the lower part the adhesions were not so firm. The thickened hernial sac was covered externally by a dense, fibrous membrane, which, at the lower part, was separated from it by a large quantity of œdematous cellular tissue; this fibrous membrane appeared to be a condensation of the different fasciæ and neighbouring cellular tissue. The testicle, somewhat flattened, was adherent to the bottom of the external coat, described as being formed by a condensation of the fasciæ, &c.; the cavity of the tunica vaginalis was nearly obliterated by extensive and close adhesions; the chord ran at the back part, between the peritoneal sac and the outer coat, to which the vas deferens was firmly attached in a great part of its length; the vessels were merely surrounded by loose cellular tissue.

Table of the Strangulated Herniæ operated upon at St. George's Hospital, in 1842-43.

Number of Operations, 34.

Age.

Maximum, 97.*	Minimum, 25.

Sex.

Men, 17.	Women, 17.

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* The oldest patient, Louis Pouchie, stated that he was 107, but it was subsequently ascertained that he had made a mistake as to his age.

Nature of the Hernia.

Inguinal,	14.	One of which, a direct inguinal, occurred in a woman, and two were congenital.
Femoral,	18.	Four of which occurred in men.
Umbilical,	2.	Both occurred in women.

Period of its existence.

Maximum, 50 years (congenital). Minimum, 3 days.

Situation.

Right side,	23.	Inguinal,	9.	Femoral,	14.
Left side,	9.	Inguinal,	5.	Femoral,	4.
Umbilical,	2.				

Period of strangulation.

Maximum, 7 days. Minimum, 3 hours.

Contents of the Sac.

Small Intestine, 29.

All were either inguinal or femoral.

Large Intestine, 4.

Cæcum	1.	Inguinal, right side (with a knuckle of small intestine).
Transverse Colon,	2.	One inguinal, left side (congenital). One umbilical.
Colon	1.	Inguinal, right side.

Omentum, 18.

Alone	2.	One right femoral. One umbilical.
With small Intestine,	13.	Right side, 7. Inguinal 3, Femoral 4. Left side, 6. Inguinal 2, Femoral 4.
With large Intestine,	3.	One inguinal, right side. One inguinal, left side (congenital). One umbilical.

In 15 cases the omentum was found firmly adhering to various parts of the sac. In 1 case the omentum was behind the intestine. In 4 cases the omentum formed a complete sac, with a narrow neck, in which the bowel was contained: in 3 of these cases the omental sac was more or less adherent to the hernial sac.

Result.

Cured, 25. Died, 9.*

In 17 cases it was ascertained that no truss had ever been worn, and in 4 cases that the truss had not been worn lately. Of those where a truss had never been worn, the shortest period of the existence of the hernia was three days, and the longest period was 50 years (congenital).

In all the 34 cases the sac was opened; in some an attempt was made to reduce the hernia without opening the sac, but unsuccessfully.

In 3 cases the gut could not be returned into the abdomen on account of adhesions: in one of these the gut itself was united to the neck of the sac, and the sac was adherent to the skin. The patient, a man, recovered: he had been operated upon, on the same side, for strangulated hernia, in 1818. The other 2 cases proved fatal.

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* The following appearances were observed in the *post-mortem* examinations of these cases:—1. Peritonitis; intestine dark-coloured and thickened; omentum adherent to the ring, and in a sloughy state; diffuse cellular inflammation behind the sac. 2. Peritonitis; intestine black, soft, and easily lacerable. 3. Peritonitis; intestine and omentum left in the sac on account of adhesions. 4. Peritonitis; intestine dark-coloured, with patches of slate colour, and very soft; kidneys granular; pneumonia. 5. Peritonitis; intestine slightly discoloured; uterus large and soft, with some remnants of sloughy placenta at its fundus. 6. Peritonitis; intestine mortified. 7. Slight peritonitis; inflammation of the mucous membrane of the intestine, in patches, most probably antecedent to operation; omentum and intestine left in the sac, on account of adhesions: these parts were but slightly altered in colour. 8. Peritonitis; intestine slightly discoloured; disease of brain. 9. Peritonitis; intestine of a dark mahogany colour, but neither thickened nor softened.

The omentum was removed in 6 cases.* Five of these recovered; one died, comatose, a few hours after the operation (disease of the brain).

———— sloughed in 2 cases. One recovered; one died.

———— suppurated in 3 cases. All recovered.

The sac and subjacent cellular tissue suppurated in several cases, and in one case, which recovered, there was very extensive sloughing of the cellular tissue of the scrotum and abdomen.

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* In some of the cases two ligatures, each embracing one half of the omental mass, were applied; in the other cases ligatures were applied to all the bleeding vessels.

ACCOUNT OF A CASE
OF A
DISSECTING ANEURISM
OF THE
AORTA, INNOMINATA, AND RIGHT CAROTID ARTERIES,
GIVING RISE TO SUPPRESSION OF URINE AND WHITE SOFTENING OF THE BRAIN.

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LIBRARIAN TO THE SOCIETY.

READ MAY 28TH, 1844.

THE narration of rare cases, difficult of diagnosis, and illustrative of pathology in general, as well as of that of particular forms of disease, appears to be one of the most legitimate and useful objects of the Medico-Chirurgical Society.

I should not venture to occupy the time of this learned body with the details of an isolated case, were it not one of exceedingly rare occurrence, and in which the morbid appearances after death were singularly explanatory of the remarkable train of phenomena which existed during the life of the patient.

On the 16th of February 1844, Mr. S——, æt.

37, a stout, muscular, plethoric man, with short neck, was suddenly seized, whilst sitting at dinner with his back to a large fire, with a fainting fit. He had come into dinner late, a large company being present, and ate rapidly and heartily of roast mutton and stewed mushrooms, and drank freely of champagne.

The dinner party took place at Norwood in Surrey, seven miles from town; Mr. S. did not arrive until the company had been at dinner some time. Having been, in a great measure, a stranger to the host, it is probable that he was flurried and excited at coming in so late.

Mr. S. was removed from the dinner room immediately after he fainted. The usual means were employed to restore him, and he quickly recovered, but on coming to himself, complained loudly of violent abdominal pain and nausea, with pain in the back. He was carried to a friend's house, close to where he dined, and Mr. Street was immediately sent for.

Mr. Street found him in great agony, calling out loudly from the pain in his belly. The abdomen was swollen and tense, but not very painful to pressure, and there was considerable nausea. The pulse was extremely feeble and irregular. Hot bran poultices were immediately applied to the abdomen, and vomiting quickly ensued, before an emetic could be administered. The quantity discharged from his stomach was very small. Great relief was experienced from the application of the bran.

A dose of calomel, followed by black draught, was given.

Next day, the patient complained of violent pain in the loins, extending down to the groins and testicles; the urine was scanty in quantity and high-coloured, but there was no sickness. The bowels had been well relieved. There was no loss of power in any limb, and the patient was able to get out of bed without assistance. There was great drowsiness. The pulse was full, but not indicative of much power. A small venesection was practised without any relief. The warm bath was also tried, and he was freely purged and slightly mercurialised. Some diuretics were also given. He was cupped on the loins, however, with decided relief to the lumbar pain.

On Monday night, the 19th of February, I first saw him. *No urine had been passed for forty-eight hours.* I found him lying on his back, heavy and drowsy, occasionally snoring slightly, with all the aspect of a man labouring under an oppressed or sluggish brain. When aroused, however, he answered any question put to him readily and rationally, but immediately relapsed into his previous drowsy state. He knew me perfectly, although we had met only once before, but he did not express any surprise at seeing me. He evinced no anxiety either respecting himself, his family, or his affairs, although he frequently expressed his opinion that he could not recover. I mention this as an indication of the sluggish state of his mind, for Mr. S—— was naturally a man of warm affections and keen sensibility.

The pupils were of medium size, not active; the right was distinctly larger than the left. There was evident paralysis of the left side of the face, hanging of the cheek, depression of the left angle of the mouth, and a greater sluggishness of expression on that side than on the other. He put out his tongue readily when told to do so, but there was slight deviation of it to the left side. The left upper and lower extremities were also imperfectly paralysed, and during the whole time of my visit there were distinct twitchings of the arm and hand, like *subsultus tendinum.* The sensation of the palsied parts was not affected, nor could any reflex actions be excited either in the upper or the lower extremities. Mr. Street remarked that these paralytic symptoms had come on in the course of the evening, since his visit in the afternoon. It was evident, therefore, that some physical change had begun to take place in the brain affecting the right more than the left side of that organ.

The abdomen was tumid and slightly tympanitic; pressure upon it did not occasion pain. The bowels had acted well. There was no fullness in the region of the bladder, and no urine escaped when the catheter was passed. The tongue was moist, but slightly firred. He complained of thirst. No nausea, nor vomiting.

The pulse was full, but compressible, regular, 90. We remarked, however, a very manifest difference in the character of the pulse at the right and left side. On *the right side it was small and feeble,* and seemed evidently to result from a narrowing of the channel through which the stream of blood passed. On examining the heart, nothing abnormal was detected in the general character of either sound, excepting that the first sound was accompanied by a bellows-sound, which was most distinctly audible over the base of the heart and in the direction of the innominata artery. This sound, moreover, was not a simple blowing, but had a peculiar rumbling character, as if the blood had to encounter a considerable obstacle. There was no evidence of any material enlargement of the heart elicited by percussion over the præcordial region. The impulse, however, was felt over a greater extent of surface than is natural, and rather denoted that there might be some hypertrophy of the left ventricle.

On questioning the patient with a view to ascertain whether there were any circumstances in his previous history which would throw light on the nature of the bellows-sound which accompanied the heart's action, no satisfactory explanation could be obtained. He stated that he was always remarkably healthy; and this assertion was confirmed by all his friends. I had myself seen him only a few days before his illness, and remarked what an appearance of health he exhibited. He enjoyed, however, a remarkable flow of animal spirits, which would not readily yield to bodily disturbance. When he found that our attention was particularly directed to the right side, he stated that he had always felt some difficulty on that side, as if he could not breathe as freely there as on the left side, and that he felt this particularly when out hunting.

Upon a careful examination of the chest, with reference to the state of the lungs, nothing abnormal was detected. The respiratory murmur on the right side was not so loud as that on the left; but the difference was not more remarkable than is frequently observed in the most healthy persons. On the posterior surface of the chest, neither auscultation nor percussion elicited any evidence of disease. I did not detect any bellows-sound in the course of the thoracic aorta.

Such were the phenomena observed about seventy-two hours after the first attack. The paralysis was quite of recent occurrence, having come on within a few hours of the time of my visit. Most of the other symptoms were present from the commencement: of these, the suppression of urine was the most prominent, and, for obvious reasons, the most urgent. The pain in the back had subsided in a great measure, and the patient now complained chiefly of general soreness and discomfort. He felt greatly the want of some urinary evacuation, and frequently directed our attention to his inability to pass water. What was the cause of this cessation of renal action? Had his cerebral symptoms any connection with it, either as consequence or cause? Did it arise from acute disease of the kidney? Or did it come on in the course of chronic granular degeneration of that organ, which had not as yet evinced sufficiently distinct symptoms to engage the patient's attention? Or did it result from the sudden impaction of a calculus in either ureter, by which the secretion of that kidney was checked directly, and that of the other one by sympathy?

Another most interesting question was suggested by the systolic bellows-sound in the course of the innominata artery. It was impossible to attribute this sound to any other than an organic obstacle at the origin or in the course of the innominata artery, or at the commencement of the aorta itself. The nature and intensity of the sound, and the appearance of the patient, which was by no means anæmic, favoured this opinion. Was the obstacle of recent or old formation? This point could not be satisfactorily determined; but the patient's statement, that he had previously suffered from some defect, which he referred to the right side, and that he had broken both his clavicles by a fall while hunting, inclined us to the opinion that the obstacle was of long standing.

Again, the hemiplegic character of the paralysis under which our patient laboured seemed to denote a concurrent affection of the brain, which, as he had been quite free from cerebral symptoms prior to this attack, must have come on immediately after, if not simultaneously with, the renal affection. And we apprehended either a very small clot or an incipient inflammation of the white substance of the brain.

Difficult as it was to arrive at any satisfactory conclusion respecting the precise cause of the symptoms which have been detailed, (and our difficulty was enhanced by our ignorance of the previous history of the patient,) we had no hesitation as to the propriety of directing our treatment to the more prominent and urgent symptoms; and we agreed to pursue the plan which Mr. Street had begun.

Five ounces more of blood were taken by cupping from the back of the neck. Free dilution was recommended, with a view to stimulate the kidneys. A blister was ordered to be applied to the back of the neck after cupping; and one-eighth of a grain of extr. elaterii to be administered every two hours. Some mutton broth and a little weak sherry-and-water were allowed.

On the morning of the 20th I found him pretty much in the same state in regard to his general sensibility. The twitchings of the left arm had ceased, and the paralysis was more manifest, although still a feeble power of moving the fingers remained. The facial palsy seemed rather less. The pulse improved a little in power after the cupping, and was now 100, full and moderately strong on the left side, but small and feeble on the right. The pupils were more dilated and a little more active, but still unequal. He had been freely purged by the elaterium: the stools were scanty and watery, and had a urinous smell. They were passed involuntarily, but not unconsciously, owing to paralysis of the sphincter, a fact which increased our apprehensions respecting the severity and extent of the cerebral lesion. The skin was warm, but not moist. He complained much of thirst, which induced him to drink a great deal.

In the evening of this day I saw him a second time along with Dr. Watson. There was no change in his symptoms for the worse. He had passed a little water, not exceeding a table-spoonful in quantity. The general signs were the same as those previously noticed. We observed, however, that the pulsation of the right carotid artery, at the lower part of the neck, was violent and laboured, when compared with that of the left artery. Pulse 120, compressible. Dr. Watson particularly expressed his opinion that the innominata artery was the seat of old or recent mischief.

As he had been very freely purged by the elaterium, and a large quantity of fluid was thereby removed through the bowels, it was determined to have recourse to a combination of diuretics, and the following draught was ordered to be taken every four hours:—

℞. Tinct. scillæ ♏xv.
Spt. æth. nitrici ʒj.
Tr. lyttæ ♏x.
Potassæ acetat. ʒſs.
Aquæ ℥ij.
Spt. junip. co.
Syrupi aurant. āā ʒſs.
Ft. Haust. 4tis horis sumend.

On the 21st, no change had taken place; the kidneys still refused to secrete. The torpor and paralysis remained.

With a view of relieving the system as much as possible of fluid, and of any azotized element that might escape by the skin, I determined to try the hot-air bath, making him dilute freely with cold water and a little gin-and-water while he was in the bath, and at the same time keeping the head cool by the constant application of ice and iced water. He bore this process remarkably well; his pulse did not rise, although he was an hour in the bath. He sweated very freely, both over the surface of the trunk and extremities, and from the head, notwithstanding the cold application. On the removal of the hot-air apparatus he was rubbed dry: he soon began to sweat again, and continued to do so for some time afterwards. The diuretics were continued.

22nd.—Passed a quiet night, and had some sound sleep. Pulse 104, compressible. Second sound of the heart rather feeble. No secretion of urine. Torpor and paralysis unchanged.

Add to each diuretic draught, spt. terebinth. ♏xv.

A large warm water enema, with half an ounce of spirits of turpentine, and 20 minims of tincture of opium, was ordered to be thrown up. He was directed to dilute freely with water, and with linseed tea. A little wine and gin, with water, were allowed, as hitherto.

23rd.—Passed about half-a-pint of urine into a bag which was suspended to his penis. The urine was pale, and had a violet odour, from the turpentine. It was distinctly albuminous, and afforded but slight traces of urea. He also passed some urine in bed. Pulse 104, and compressible. To-day he appears decidedly weaker than yesterday. Still drowsy, but rather less so than yesterday. In the morning he evinced a decided tendency to sink, and to such a degree that it was necessary to give wine in larger quantity.

Repeat the enema with the turpentine.

Omit the diuretic draught, and substitute the following:—

℞. Spt. terebinth. ♏xv.
Amm. sesquicarb. gr. v.
M. camph. ʒxiſs.
Syr. aurant. ʒſs. ♏.
Ft. Haust. 4tis horis sumend.

Pounded ice, in a bladder, was directed to be kept to the right side of the head, and he was allowed a liberal quantity of port wine, gin, and beef-tea.

24th.—In the course of the last night, and this morning, the tendency to sink was so great, that it was found necessary to give a much greater quantity of wine than was ordered for him. On two or three occasions, his pulse failed, and became irregular and intermittent. The heart's action, at the same time, became very feeble, but was roused again by the administration of stimulants. The kidneys now act very freely. Pulse 104, very compressible. Heart's sounds, feeble. Head symptoms unchanged.

Stimulants to be continued.

Quinæ disulph. gr. v. 4tis horis.

25th.—This morning, during my visit, he passed water in large quantity, and in a full stream. The urine is natural in point of colour; specific gravity 1·009; acid, and slightly albuminous. Pulse rather stronger than yesterday, but occasionally irregular; has had rather a restless night, and now has a wild look, like that of a patient suffering from the delirium which arises from loss of blood or exhaustion.

To have, in addition to his quinine—

Decoct. Cinchon. ʒxi.
Tr. Hyoscyami.
Tr. Cinchon. co. āā ʒſs.
4 tis horis.

Stimulants to be continued.

26th.—Passed a tranquil night. At the time of our visit, in the morning, we found him asleep, breathing with great tranquillity, without stertor. Pupils rather more contracted, and equal. He was very readily aroused from sleep, and appeared very rational and collected, but drowsy. He has recovered some power over the paralysed arm. Pulse and heart's action stronger; puts out his tongue straight, and with power.

The most alarming symptom under which our patient now laboured, was the tendency to sink. The action of the kidneys was restored, and from the increased power of the arm, and the diminished drowsiness, we judged that the brain affection had yielded in some degree. It was found indispensably necessary to support him by the liberal use of stimulants; and at the same time we judged it desirable, with reference to the head affection, to induce a moderate degree of mercurial action, by rubbing in twenty grains of mercurial ointment, night and morning.

On visiting him this morning, I found the pulse becoming rather hard, and the skin hot. I thought, therefore, that he had better dispense with a portion of his stimulants. He was left without any stimulus for about three hours, and Mr. Street, on visiting him at the expiration of that time, found that he had sunk very much; his pulse faltered, and the heart's action had become very feeble and intermitting. The stimulus was instantly resumed, and he was ordered a night draught, with twenty minims of Battley's liquor opii sedativus.

27th.—This morning he looks better, and has more power in the arm, and also some in the leg; but the pulse is very irregular, and without strength. His mind is evidently clearer. The heart's action is sufficiently distinct; the bellows-sound very audible. He passes urine in good quantity. He bears the stimulants well, and they appear absolutely indispensable to prevent him from sinking.

At 11 o'clock at night, he was visited by Mr. Street's assistant, who found him tranquil, with moderately good pulse. His bowels had acted, and he passed water. He appeared very sensible.

At 12, his brother raised him in bed to give him a drink; just as he had finished drinking, he was seized with a slight convulsion, and fell back dead.

The extreme suddenness of the fatal event, with the remarkable vaccillation of pulse, and the tendency to sink, which had appeared during the previous three or four days, clearly denoted that a profuse internal hæmorrhage must have been the immediate cause of it.

On the morning of the 29th, I proceeded, along with Mr. Street, to examine the body.

The degree of collapse which had taken place since death was quite remarkable. The face and head appeared quite exsanguious.

On cutting through the scalp, very little blood issued from the divided vessels.

The membranes of the brain were pale, but in other respects natural. The sub-arachnoid fluid was moderate in quantity. The right side of the brain was decidedly paler than the left. When the hemispheres were cut into, the exsanguiousness of that on the right was very manifest, from the total absence of bloody points, which, however, existed in their ordinary number in the left hemisphere. The vessels of the circle of Willis were pale and empty, especially the right carotid and its branches. They were quite free from disease. The right vertebral artery had a small atheromatous spot upon it, of very limited extent.

The left hemisphere was perfectly natural. On examining the cut surface of the centrum ovale on the right side, it presented the appearance as if it had been worm-eaten in patches. Each patch was from half an inch to an inch in diameter. It had the same colour as the surrounding brain substance, but was evidently diminished in consistence: the slightest lateral friction with the edge of the knife completely disarranged it; and when a stream of water was poured upon it, it was broken up into shreds which floated in the water. These patches were very numerous; they were found in all that part of the hemisphere which is above the fissure of Sylvius; each was surrounded by cerebral substance of nearly natural consistence. Many of the patches were superficial, and involved portions of the grey matter of the convolutions, which exhibited the same degree of softening. They were all perfectly free from admixture with any foreign material, such as pus, or with blood. I searched for the former by the aid of the microscope, but could find no trace of it. Nerve-tubes were seen in their ordinary number, which seemed easily broken up and very varicose.

The right half of the fornix, and the septum lucidum, were likewise extremely soft.

The paleness of the grey matter of the convolutions on the right side particularly attracted notice. No appearance of red blood was visible to the naked eye. On the left side, the colour was perhaps a little paler than is natural.

The bloodless state of the right side was strikingly evinced by the extreme paleness of the choroid plexus on that side, while that of the left side retained nearly its natural colour.

That part of the right hemisphere which was below the floor of the fissure of Sylvius appeared much paler, and rather softer than is natural, but did not exhibit the patches of softening above described. The same remark is applicable to the right hemisphere of the cerebellum.

These appearances at once explained the paralysis of the left side, under which our patient laboured. It was plain, from the peculiar exsanguiousness of the whole hemisphere, that it must have been deprived of a large proportion of its usual supply of blood; and that that portion of it suffered most which derived its nutriment from the middle cerebral artery in the fissure of Sylvius. In fact, this side of the brain was thrown upon the branches of the vertebral artery and the anastomosing branches from the opposite side for its supply of blood. The improvement which took place in the paralytic symptoms during the last two days of our patient's life, denoted that the collateral circulation had begun to convey a larger amount of blood to the right side of the brain; and no doubt, had he lived longer, it would have been quite sufficient to restore the nutrition of that organ.

No explanation of the exsanguious state of one half of the brain could be derived from an examination of its arteries: they were pale and empty, but free from disease. There was nothing to prove that any obstacle to the current of the circulation could have taken place in them. The impediment was to be sought for, and probably would be found, in some of the primary channels leading to the head.

We proceeded next to examine the thorax; and here the most complete elucidation of the suddenness of death and of the previous complicated train of symptoms was obtained.

The pericardium was distended by blood. A layer of dark and recent coagulum, nearly an inch in thickness, surrounded the heart. This organ was perfectly empty. It seemed larger and firmer than is natural, the walls of all its cavities partaking of these characters. The left ventricle, when cut across, exhibited the condition which is described by the name of "concentric hypertrophy," and afforded a beautiful illustration of Cruveilhier's doctrine, that this condition is produced in dying, and is not the offspring of a morbid process in the heart itself.

The source of the hæmorrhage was found to be the aorta, which had given way, and allowed the blood to escape through a small fissure of its external coat, and of the portion of the pericardium which is reflected on it. This was situate about an inch beyond the ostium aortæ, and was large enough to admit a small goose-quill.

The arch of the aorta at this part was evidently much dilated. All the coats, however, did not participate in the distension, for it was soon evident, on examination, that the outer or cellular coat was separated from the middle coat, for some extent, leaving a considerable space in which the blood accumulated.

The aorta was laid open along its concave border. The semi-lunar valves were healthy. Several atheromatous patches were found in the valve of Lieutaud, in the arch, and in greater number in the descending aorta. In one of these patches, about half an inch beyond the free margin of the semi-lunar valves, ulceration had taken place. This ulcer was the starting point of a transverse rent, which involved the inner and middle coats of the artery, and through which the blood found its way into the sac, between the outer and middle coats.

The separation of the coats, however, was not limited to the first portion of the aorta. It proceeded along the posterior surface and convex edge of the arch, involving the innominata artery, and, to a partial extent, the left carotid and subclavian. The middle coat of the aorta was split into two layers, between which the blood formed for itself a new channel, down to the abdominal aorta, in which it was evident, from the presence of recent coagula in it, that blood had recently flowed.

A new channel was likewise formed by the splitting of the middle coat of the innominata on its outer and posterior part. This channel extended up to the lower part of the common carotid artery, and the blood accumulated there to such an extent as to obliterate the canal of the artery completely, and effectually to stop the ascent of the blood into it. Two channels were thus found in the innominata; one leading to the carotid, which was formed by the splitting of the middle coat; the other, the natural one, much diminished in size, through which the subclavian was supplied.

A similar splitting took place in the middle coat of the left carotid and subclavian arteries, but to so slight an extent, that there could not have been any material impediment to the current in them.

All the tunics of the arteries, involved in the laceration, except the inner coat and its subjacent tissue, wore a healthy aspect to unaided vision. There could be no doubt, from the fresh appearance of the torn surfaces, that the laceration was of quite recent occurrence. There were no thickening of the cellular tunic, nor any smoothness of the torn surfaces over which the blood flowed, to indicate that the abnormal channels were otherwise than of quite recent formation.

The parts were all removed from the body for subsequent more careful examination. By an unfortunate oversight, the abdominal aorta was left behind, and the omission was not discovered until the body had been replaced in the coffin.

I am, therefore, unable to state positively to what extent in the aorta the new channel reached. It seems highly probable, however, from the suppression of urine which took place so early after the seizure, that it must have extended so low as to impede, for a time, the current of blood in the renal arteries. The return of the secretion of the kidneys was therefore the indication of the complete restoration of the circulation in them. It is impossible, however, that the circulation could have been *completely* suspended in these organs for three or four days, as they would probably have become gangrenous. The cessation of the secreting action of these glands is, doubtless, sufficiently explained by the temporary diversion of a portion of the aortic stream into another channel, and by the shock which they must have experienced from the great violence done to the aorta.

It is proper to add that the circulation in the aorta could not have been completely interrupted. There was no coldness of the lower extremities, and I more than once felt the pulsation of the femoral arteries before the secretion of urine had returned.

The other organs examined were the liver and the kidneys. The liver was rather larger than in perfect health, but exhibited no other marks of diseased action. The kidneys were very large, much congested, and in the second stage of granular disease. This state of kidneys we were prepared to find, and from it we derived additional proof, (if such were wanting,) of the complete restoration of the circulation in those glands.

The evident connection between the appearances discovered after death, and the symptoms under which the patient laboured for a period of ten days, invests this case with peculiar interest.

It cannot be doubted that the laceration of the aorta and the formation of the new channel throughout its course was the cause of the fainting fit which ushered in his illness. The sudden diversion from the brain, of so large a portion of blood as that which one carotid artery is accustomed to supply to it, whilst the patient was in an erect posture, was alone a sufficient cause for syncope. And to this may be added the disturbance which the heart must have experienced from the sudden opening of the new channel. The severe pain in the back is explained by the forcible tearing up of the aortic walls, by means of the column of blood forced along it. Those who attend to the sensations which are produced in their own persons under the influence of particular changes, must have remarked the painful feeling which is perceived along the course of the abdominal aorta, when the heart's action is forcibly excited by a sudden emotion of the mind. How much greater must be the pain which is excited by the *laceration*, than that which results simply from the distension of the artery!

The encroachment upon the calibre of the innominata by the formation of the new channel in it, accounted for the peculiarity of the pulse in the right wrist, which attracted our attention from the first. And the plugging of the carotid low in the neck, explained the laboured pulsation which was felt just below the obstacle.

Not the least interesting point in the case is the obvious connection which existed between the softening of the brain and the stoppage of the circulation in the common carotid artery. We have seen that the patches of white softening were limited to that part of the brain which is supplied by the middle cerebral artery. This artery is the principal branch of the carotid within the cranium, and has a less free communication with the corresponding ramifications of the opposite side than any of the other arteries of the brain. Hence the parts supplied by it are more apt to suffer than those which are nourished by the other branches of the carotid.

How strikingly illustrative, too, is this case, of the nature of that morbid change which is known by the name of *white softening*, or more properly *softening without discolouration.* There was not a particle of evidence derivable from the anatomical condition of the parts to prove the existence of inflammation. The softening depended upon the cessation of the circulation in the carotid as evidently as do cases of senile gangrene upon obstructed arteries in the affected limb.

The internal carotid arteries of opposite sides do not anastomose with each other by any means so freely as do the external. This was illustrated by the fact that the circulation was very quickly restored in the branches of the external carotid, for the pulsations of the right temporal artery were all along distinct, and there was no appearance of any want of nutrition in the right side of the face.

When the circulation is obstructed in the *internal* carotid artery, the chief source of supply to the brain on the same side is from the vertebral artery. That this collateral circulation is amply sufficient to prevent any injurious influence upon the functions of the brain, is abundantly proved by many recorded cases of spontaneous or artificial obstruction of the common carotid artery.* How is it that it was insufficient in this case? This question may be satisfactorily answered by referring to the narrowed dimensions of the innominata and right subclavian arteries, and the consequent imperfect supply of the right vertebral. In the cases above alluded to, in which no cerebral symptoms followed obstruction of the carotid, the course of the vertebral was free and unimpeded.

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* See the chapter on Carotid Aneurism in Mr. Hodgson's book on the diseases of Arteries.

We were unable to detect any morbid appearance in the right lung, to explain the diminished intensity of breathing which had been noticed in it. Perhaps the right bronchus may have experienced some compression from the aneurismal tumour of the ascending portion of the aortic arch.

This case is an additional example to many which the experience of every physician must afford, of the gradual and imperceptible way in which the seeds of serious organic disease are sown without attracting the attention of either the patient himself, his friends, or even his medical advisers. Every one to whom I referred respecting Mr. S.'s past history, bore testimony to his uniform robust health. He was, however, a free liver, went very much into society, and possessed convivial powers of no ordinary kind. He was much addicted to field sports, and partook freely of the good cheer which every sportsman thinks he has fairly earned by his exertions in the field. I had reason to know that Mr. S. was twice passed as a healthy assurable life, within a recent period, and by men of great discrimination, and was assured in two offices.

There are many cases of dissecting aneurism now on record. These have been recently collected in a valuable paper by Dr. Peacock, in the Edinburgh Medical and Surgical Journal for October 1843. Some of the cases quoted, or first recorded by this author, resembled that which I have detailed, in the syncope, and the pain along the course of the aorta, which ushered in the patient's illness; but none exhibit a train of symptoms so extensive, nor so clearly consecutive to the organic disturbance occasioned by the primary rupture, as that which I have now had the honour to communicate to this Society.

The drawings which accompany this paper were made for me by Dr. Westmacott. They are faithful representations of the appearances observed in those portions of the arterial system which were examined.*

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* See Plates IV. and V.

CASE

OF

ANEURISM OF THE EXTERNAL ILIAC,

IN WHICH A LIGATURE WAS APPLIED TO THE COMMON ILIAC ARTERY.

By RICHARD HEY, Esq., F.R.C.S.,
SURGEON TO THE YORK COUNTY HOSPITAL.

Communicated by Sir BENJAMIN C. BRODIE, Bart.

READ APRIL 9th, 1844.

Since John Hunter expounded the true principles on which the cure of aneurism is to be attempted, an increasing confidence in the resources of their art has led surgeons to apply the principle of stopping the circulation through the diseased vessel to the most important arteries, not even with the exception of the aorta itself: so that the case which I am about to relate to the Society will not deserve attention on account of originality, although I presume to hope that it presents some features of interest, which may render it not altogether unworthy of notice.

Before I relate the particulars of the case in which I had the satisfaction of successfully tying the common iliac artery for the cure of a large aneurism of the external iliac, I shall take the liberty to present a short account of the cases in which a ligature has been applied to this important artery.

1. Professor Gibson, of Pennsylvania, seems to be the first individual who has given us any account of this operation; he tied the common iliac for a gun-shot wound in 1812, but the patient died on the 13th day, from peritoneal inflammation.

2. The second case upon record was one in which Dr. Mott, of New York, tied this vessel for the cure of aneurism of the external iliac in 1827: the ligature came away on the eighteenth day, and the patient recovered.*

3. Sir P. Crampton tied this artery in 1828 for aneurism of the exterior iliac, but death ensued on the fourth day, from hæmorrhage. It is much to be regretted in this case that a common silk ligature was not used: had this been done, probably a different result would have ensued.†

4. Mr. Liston, in 1829, tied the common iliac for secondary hæmorrhage after amputation. The patient was a boy eight years old: he died very soon after.

5. Mr. Guthrie applied a ligature to this artery for supposed aneurism of the gluteal artery. The patient recovered; but having died eight months afterwards from another cause, it was ascertained that no aneurism had existed.

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* Article "Aneurism," by Mr. Wardrop, in the Cyclopædia of Practical Surgery.

† Medico-Chirurgical Transactions, vol. xvi.

6. In 1837, M. Salomon, of St. Petersburg, tied the primitive iliac with success.

7. Mr. Syme, of Edinburgh, performed this operation in 1838: the patient died on the fourth day.

8. The common iliac was successfully tied by M. Deguise, at the Hospital of Charenton, in 1840.

9. Dr. E. Peace, of the Pennsylvania Hospital, applied a ligature with complete success to the common iliac in 1842, for the cure of aneurism of the external iliac artery: a detailed account of this case may be found in the first volume of the Medical Gazette for the session of 1842-3.

From this account it will appear that the operation has been performed nine times; and although it has not hitherto been very successful in this country, yet upon the whole, if we add the one which I now relate, we have a decided preponderance of successful over unsuccessful cases,—as six to four.

The following is a brief account of the case which fell under my care.

On the 22nd of November 1843, I was requested to visit Mr. Taylor, of Acomb, near York, in consultation with Mr. Nelson and Mr. Ellis, surgeons. I found a large pulsating tumour, situated above Poupart's ligament, which, according to Mr. Nelson's account, had increased in the course of ten or twelve days from a very small size; appearing at first like a cluster of enlarged glands, being very hard, and devoid of any remarkable character. In two or three days, however, its sudden and rapid increase, accompanied with great pain along the course of the anterior crural nerve, and pulsation, left no doubt as to the real nature of the complaint, viz. that it was aneurism of the external iliac artery.

I visited Mr. Taylor, on several occasions, until the 2nd of December; when, as the tumour was rapidly increasing, and the skin threatened to give way under the progressing disease, I determined, with the sanction of my brother, Mr. W. Hey, of Leeds, who had been requested to see the case, to apply at once a ligature to the common iliac, as the only means of possibly saving the patient's life. There were present at the operation—Mr. Nelson, Mr. Ellis, Mr. W. Hey, and Mr. Teale, of Leeds; Mr. Dodsworth and Mr. Reed, of York.

The tumour now occupied the whole of the left iliac fossa, extending from below Poupart's ligament to within little more than an inch from the umbilicus; the vertical diameter was six inches, the transverse six inches and a half; the swelling also projected at least three inches from the plane of the abdomen. It presented all the usual characters of aneurism. The patient was placed on a mattrass, inclining somewhat to his left side, and his shoulders moderately raised.

I commenced the operation by an incision which reached from about two inches and three quarters above the umbilicus to the base of the tumour, being about six inches in length, and moderately curved; this was afterwards extended by an angular continuation an inch and a half in length; it was also exactly three inches to the left of the median line. The fibres of the external and internal oblique and transversalis muscles were successively divided; and the transversalis fascia having been readily raised with a director, was carefully opened, to an extent equal with that of the external incision. The peritoneum now protruded, but being greatly depressed and drawn towards the opposite side, I was enabled slowly to insinuate my fingers behind it, so as to separate it from its cellular attachment to the adjacent parts. The common iliac artery was easily reached, and its compression with the finger instantly stopped the pulsation in the tumour. A little time was occupied in scratching through the sheath of the artery; a common silver aneurism needle was now passed under the artery, armed with a double ligature of staymakers' silk, waxed. By holding aside the peritoneum and viscera, a momentary view of the artery was now obtained, and its complete isolation ascertained. The ligature was then tightened with the fingers close down upon the artery, when the pulsation entirely and finally ceased. The situation of the ligature was I believe an inch below the bifurcation of the aorta, or very little more.

The wound was closed with sutures and strips of adhesive plaister, and over the whole was placed a coating of lint dipped in strong mucilage. The time occupied by the operation was 25 minutes.

After the operation, the patient was much exhausted, notwithstanding the little blood lost, no vessel having required to be tied. He vomited some brandy-and-water, which had been given to him during the operation, but a cup of boiled milk was retained.

I shall not occupy the time of the Society with a lengthened account of the progress of this case. The wound healed, upon the whole favourably, and the ligature came away on the twenty-eighth day after the operation.

It is important to remark, that the temperature of the limb was much less affected than might have been expected. The limb was simply wrapped in fine flannel. It was found at first to have fallen three degrees below the temperature of the sound limb; on the third day it was two degrees warmer than the other, and on the fourth day both limbs were equal in that respect, and continued so. One source there was of anxiety in the after treatment, which I must not omit to notice. The patient complained of a constant sense of distension of the bowels, accompanied with violent spasm, especially when the bowels were moved; and which was but partially relieved by the use of aperients and anodyne injections. On the 4th of January (thirty-three days after the operation) these symptoms assumed a very serious aspect. No action of the bowels could be obtained, the attacks of spasm were most distressing, the abdomen was tympanitic, and the patient became quite exhausted, slight coma denoting his dangerous condition. Mr. Nelson thinking it advisable to empty the bladder with the catheter, found so much obstruction, as to induce him again to explore carefully the rectum. (This had already been done, in order, if possible, to find a clue to these repeated and painful attacks.) He now, however, found that bowel distended with an enormous mass of fæces, which he described to me as very much resembling the presentation of a child's head in labour.

This mass, which was perfectly dry and hard, was with difficulty broken down, and thus were these alarming symptoms at once explained and relieved, and the patient became rapidly convalescent.

There can be no doubt, that the pressure of the aneurismal sac on the colon prevented the contents of that viscus from descending into the rectum, thereby causing a gradual and formidable accumulation, and which was at length suffered to descend by the progressive absorption of the fluid in the sac.

On the 20th of January I found Mr. Taylor restored to his usual health, and able to take daily walking exercise.

It only remains for me to make a few brief observations.

1. This is the first case which has occurred in this country in which aneurism of its branches has been cured by tying the common iliac artery.

2. The extreme rapidity with which the tumour increased is, I think, worthy of note. When first observed, it was mistaken for a mere enlarged gland; and in the short space of three weeks, in spite of

every effort to retard its progress, it had attained the large dimensions which have been described. The patient very nearly lost his life in consequence of his indecision after the operation was proposed. It may be a question for serious consideration whether, in a similar case, a surgeon would be justified in delaying the operation at all, after the real nature of the disease has been clearly ascertained.

I intended to have made some observations on the situation of the incision in this case, not only with regard to any future operation for the same disease, but also as affecting the operation for tying the aorta itself; but I observe that Sir P. Crampton has said all that need be advanced on the subject, in the account of his case already referred to. I see no reason to doubt the practicability of successfully tying the aorta itself, when we recollect the various instances in which that vessel has been found obliterated after death.

Finally, the alarming symptoms which threatened at last to destroy all our hopes should teach us to reflect, in every doubtful case, on the mode in which the deviation from a healthy condition of any structure may give rise to the most anomalous symptoms in another; for, in the case under notice, reflection might, possibly, have indicated to us that state of things which time showed really to exist, and so have led us daily to examine the state of the rectum, so long as the necessity existed.

TWO CASES
OF
TUBULAR EXPECTORATION FROM THE BRONCHI,
IN THE ADULT.

By JAMES REID, M.D.,
PHYSICIAN TO THE INFIRMARY OF ST. GILES AND ST. GEORGE, BLOOMSBURY;
PHYSICIAN-ACCOUCHEUR TO THE GENERAL LYING-IN HOSPITAL, ETC.

Communicated by Sir JAMES CLARK, Bart.

READ JUNE 11th, 1844.

There are few cases of this disease placed on record, either by foreign authors or by those of our own country, and, with one or two exceptions, the standard works on the Practice of Medicine make no allusion to it. Dr. Watson, in his late excellent work, has mentioned *two* cases, (one of which is detailed in the following paper,) and remarks, that no similar ones had before fallen under his notice. Several medical friends, in extensive practice, have also informed me that they have met with no instance of the complaint, and in the hospitals and infirmaries of the metropolis it is rarely, if ever, observed. In the practice of the Infirmary of St. Giles and Bloomsbury, where, on the average, 13,000 patients are seen annually, no case of this description has been noticed by either of the medical officers, one of whom has been attached to that institution for upwards of *thirty* years.

I am aware that there are in London a few individuals who have been liable to the complaint for some time, and who still enjoy good health (amongst them is an eminent member of our own profession); but I believe that there is no published account of their cases.

That of a child, narrated by Dr. Warren in the Medical Transactions of the Royal College of Physicians in 1767, under the term of "*Bronchial Polypus*," is generally referred to for a description of the disease, and an account was given of it under the same name by Mr. North, in a paper read at the Royal College of Physicians in 1838, with a description of two cases occurring in the adult.

Case 1.—Mrs. S., æt. 28, married. In December 1836, this lady suffered from bronchitis, not of a very severe character, but attended for some weeks with a distressing cough and febrile symptoms, which were treated in the usual manner. In February 1837, a chronic cough remained, with occasionally some degree of dyspnœa; and, on the 15th of that month, after having suffered for some hours most severely from a sensation of suffocation, she coughed up, amidst large quantities of froth and mucus, tinged with blood, several arborescent membranous substances, resembling casts of the minute bronchial tubes. As at that period I was totally unacquainted with the complaint, and was unable to find any account of it in the works of practical medicine which I consulted, I treated it as I should have done a severe case of croup in a younger subject, viz. by leeches to the upper part of the chest, blisters, small doses of morphia, calomel, and antimonials, allowing, at the same time, only a light farinaceous diet.

This arborescent substance continued to be expectorated for three days, diminishing gradually in quantity, to the great, though not entire, relief of the breathing. The patient suffered from a recurrence of the attacks five or six times, at intervals varying from one to three weeks in extent, but each attack being preceded by the same sense of suffocation. During the intervals between the paroxysms, small portions of tubular expectoration were frequently discharged, with a slight cough. By auscultation, the only sign discovered was a mucous *râle*, which increased previously to, and during the paroxysm.

The patient had become in a short time much emaciated; there was a hectic flush on the cheeks; her general health was affected; and, on account of dyspnœa attending the slightest exertion, especially on going into a colder atmosphere, she could not venture to leave her room for a considerable time. By the use of the respirator, however, she was at length enabled to do so, and, in the summer of 1837, to undertake a journey to Devonshire, where her health materially improved, and she speedily regained both flesh and strength, although still occasionally expectorating the same substance, but in very small quantities.

On her return to London at the end of September she immediately found her breathing affected as much as before. There was constant dyspnœa, especially on the least exertion; inability to remain in a recumbent position; whilst a tickling, harassing cough, accompanied by a sense of constriction about the thorax, prevented her from enjoying much rest.

On the 15th of October I was sent for during the night, and found her apparently in a moribund condition. The face was livid, the pulse slow and labouring, skin cold and clammy, respiration oppressed, and she was unable to recline in the least degree without a sense of suffocation.

I cautiously abstracted about 12 oz. of blood from the arm, which afforded material relief: the patient was then able to lie down; the respiration was much easier; and in the course of a few hours she expectorated much frothy mucus, slightly tinged with blood. No purulent matter was observed at this or any former period. The arborescent tubular expectoration now came off in larger quantities than ever, of a much firmer consistence than in the previous attacks; and, after continuing for some days, gradually ceased. A discharge of blood always accompanied it, but never to any considerable extent.

The patient had no return of the complaint after this period, but died in December 1841, of a disease quite unconnected with the chest.

Case 2.—February 1841.—The patient, æt. 44, a robust, healthy man, of regular and temperate habits, by profession a barrister, had complained two years since of uneasy sensations about the throat and fauces, for which, iodine and other remedies were prescribed, but without affording any benefit: a journey into the country, however, had the effect of removing them in a few days. The above symptoms, coupled with a feeling of dryness and heat about the frontal sinuses, were attributed to the presence of a stove in his chambers, and which was therefore discontinued. The sensations of discomfort still continuing, the patient, who otherwise was in excellent health, went to Brighton, with the hope that a change of air would again prove beneficial, but after remaining there for a month, he returned with the symptoms rather aggravated. The fauces were inflamed, and there was a small ulcer on the uvula, which was soon cured by the use of the ordinary means, but the patient always complained of a sensation as if there were something about the throat, which he felt a desire to cough up. Soon after Easter, whilst sitting at dinner, a sudden and violent paroxysm of coughing occurred, which lasted for half an hour. After the attack, the voice became husky, and there was a frequent ringing cough, and a sense of uneasiness about the upper part of the sternum.

Small doses of blue pill, ipecacuanha, and iodine, were given internally. Demulcent and astringent gargles were employed, with the use of inhalations, both of the vapour of water and of iodine; embrocations, cataplasms, and mustard poultices, were applied in succession to the throat, but without affording any material benefit.

Confinement to the house was rarely required, as the symptoms were not of an urgent nature, the respiration being always free, and unattended by any difficulty or oppression. In the autumn of 1840, the patient passed two months in the country, in perfect health, and the respiration was so free, that he was accustomed occasionally to walk quickly up a steep hill in the neighbourhood, reciting loudly Greek verses, "in order to try his wind."

On his return to town, at the end of October, he felt much less uneasiness than formerly, but frequently expectorated small quantities of mucus, and still experienced a sense of huskiness about the lower part of the throat.

On the morning of February 9th, 1841, the patient called on me, and stated, that on coughing slightly before breakfast, some dark-coloured blood had accompanied the expectoration, but in trivial quantity. On the evening of the 10th, I was requested to visit him, as a slight hæmorrhage from the lungs had occurred, for which I prescribed the infus. ros., with iced lemonade, and the application of iced water to the throat and sternum. No violent cough accompanied the hæmorrhage.

11th.—I was again sent for, at 3 A.M., as the hæmorrhage had recurred, but to a much greater extent; the blood was of a florid colour, but came up easily, without much cough. The symptoms being now of a much more alarming character, I immediately abstracted a large quantity of blood from the arm, by a free orifice, till a state of faintness was induced. On recovering from this, the patient was seized with a convulsive cough, and brought off a portion of dark flesh-like substance, about two inches long, and with two ramifications from each of its extremities. Its diameter was about four or five lines, and it was evidently tubular. I at once recognized it as analogous in its characters to the substance which I had seen thrown off from the lungs in the former case, and this had the immediate effect of allaying all apprehensions which I had previously felt as to the safety of the patient. The hæmorrhage ceased, and he experienced no bad effect from the attack, but slept tranquilly for some hours. Ice and cold lemonade were the only remedies now made use of.

Dr. Watson saw the patient with me, at noon, when there had been no return of the hæmorrhage. On auscultation, a slight sonorous *râle* was heard at the posterior and lower part of the left lung, and on this account it was judged expedient to abstract ℥x of blood from the spot by cupping. Gentle doses of saline aperients were occasionally given, light diet and cool drinks were continued, and the patient was recommended to keep the house for a few days.

He returned to his usual avocations on the 15th; but on the ensuing day hæmorrhage recurred, and soon after, several portions of tubular substance, bearing a close resemblance to plastic casts of the extreme bronchial tubes, were coughed up, without any exertion, the bleeding soon after ceasing altogether. The voice was now found to be much clearer than it had been for some considerable time. After this period an expectoration of mucus took place frequently, with occasionally small dark coagula. Dr. Watson had recommended the employment of blue pill daily, so as to affect the gums slightly; but after continuing it for a week, and not finding it to produce the expected effect, it was left off. It was observed by the patient, that, after the cessation of the tubular expectoration, the voice gradually resumed its husky character, to as great an extent as it had ever existed during the two last years.

December 19, 1841.—Nine months subsequent to the previous attack, the same patient whose case is above narrated, perceived, after a fit of sneezing, a sensation under the left clavicle, and in the throat, which he recognized as one which had preceded the attacks of hæmorrhage in February last; an expectoration of mucus tinged with blood continued through the day, and on the 20th, after a considerable mucous *râle*, hæmorrhage occurred, and was soon followed by a large quantity of the tubular substance: these on being placed in water, floated on the surface.

21st.—A large portion came away with considerable hæmorrhage, and expectoration of mucus: several others were coughed up at intervals varying from five to twelve hours, through the 22nd and 23rd. On the 25th, a second portion came away, accompanied by some hæmorrhage. On the 26th, a sort of creeping sensation was felt on the left side of the thorax, chiefly under the clavicle; and in the morning of the 27th, the patient awoke with a rattling in the throat, as he described it, the hæmorrhage returned, and a third portion was expectorated.

On the 28th of December, slight hæmorrhage continued, accompanied by the throwing off of a tubular substance of very small diameter, almost as fine as a thread in some parts, and ending, as Dr. Warren expresses it, in almost evanescent twigs.

After this period, although the mucus expectorated was for a few days slightly tinged with blood, no further solid substances were brought off, neither was there any return of hæmorrhage.

During this attack, the symptoms were not so actively combatted as in the former one. Expectorants of ipecacuanha, squills, combined with gentle aperients, light diet, and cooling drinks, were found sufficient.

In a subsequent slight form of the complaint, some months afterwards, expectorants alone were administered, although the tubular substances brought off were mixed with blood.

Up to the present time (two years nearly having elapsed) there has been no return of the disease.

It is a curious coincidence that not long after this, the brother of the patient was affected by the same complaint. His case is related by Dr. Watson, in the valuable lectures lately published by him, and the following is a very brief outline:—"Some mouthfuls of florid blood were suddenly brought up, but unattended by any cough, a rattling sensation being felt in the right side of the chest; the blood came up in gushes, at intervals varying from three to six days; the smallest quantity being about two ounces, the largest eight ounces. Crepitation was heard about the right nipple, and was increased at the periods of the hæmorrhage. In the intervals, the breathing was tranquil and regular. At the end of three weeks, some ragged shreds of a tubular form were expectorated, but none of them were of very firm consistence." Till the true nature of the complaint was discovered, Dr. W. mentions that the anxiety of the patient was extreme, and I know that the friends were equally alarmed, until the tubular substance was noticed, when all fear of danger was immediately removed.

The accompanying sketches* were taken by my patient himself, whilst the arborescent substances were in a recent state.

In giving an account of the above cases, I have used the term "*Tubular Expectoration from the Bronchi,*" in preference to that employed by Dr. Warren, viz. *Bronchial Polypus.* The adoption of the term '*Polypus,*' by Dr. Warren, depended, most likely, on its having been previously used to designate the false membrane thrown off in croup. Indeed, C. F. Michaelis, in his treatise "*De Angina Polyposa sive Membranacea,*" 1778, thought it necessary to point out that it was an *inorganic* concretion formed by coagulation and inspissation of some fluid, and differing altogether from *organic* polypus.

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* See Plate IX. figs. 1 and 2.

Those specimens of the bronchial concretions which I have had the opportunity of examining, seemed, with few exceptions, to be hollow, and to contain both air and blood; they floated on the surface of the fluid into which they were thrown, and after the latter had been repeatedly changed, the blood was given off, and they assumed a greyish white appearance. Their hollow cylindrical form was evidenced also by examination under a powerful microscope. When kept in *diluted* spirit, they gradually lost the air contained in them, and sank to the bottom of the glass, and in the course of a few months were totally dissolved, giving to the fluid a mucilaginous consistence. When the fresh specimens were placed in *proof* spirit, they speedily shrank into very small compass, and sank to the bottom of the glass, but though losing their original appearance so soon, were preserved for a much longer period than the others. In Dr. Warren's case, the great proportion of these substances were from two to three or four inches long, white and opaque; at first they were specifically heavier than water, but after a day or two, they swam. Ruysch* describes specimens which he had an opportunity of observing in one case, as not being tubular; they were not expectorated however during the lifetime of the patient, but seen in the air-tubes after death.

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* Epist. Anatom.

The *cough* seems to vary in different cases of this complaint, and not to be of that intense character which it generally exhibits in croup; but my *first* case is even an exception to this rule, for in it, it will be remembered, dyspnœa existed to a great extent, accompanied by a harsh suffocating cough, and prolonged inspiration; the attempt to fill the lungs with air caused evident congestion, with lividity of the face and urgent symptoms, which were not entirely relieved until the tubular substance had been thrown off. It seems probable, although the greater number of these tubes may remain permeable, and allow of the passage of air, that in some cases the smaller tubes are completely blocked up, giving rise to symptoms resembling even those of pneumonia or of spasmodic asthma. In the *second* case which I have related, the cough, although of a ringing character occasionally, was never accompanied by a feeling of suffocation, nor even of oppressed respiration, except on one occasion. In Dr. Warren's case, " the little patient awoke suddenly, and was almost choked, in bringing up, by coughing, a large polypous concretion."

It will be remembered that in *croup*, also, the cough does not *always* exhibit the same character; and in cases mentioned by Mons. Hache, in his thesis, and by Dr. Home, of Edinburgh, there was *none* at all.

Hæmorrhage is not a constant accompanying symptom: in Dr. Warren's case, as in that of Dr. Nicholl, it was *occasional* only, and that too when the smaller pieces were thrown off. " One large concretion came up without either blood or mucus." Dr. Warren mentions, that after the space of two years, his little patient had had no return of this, nor of any other pulmonic affection. In none of the cases recently described does the hæmorrhage appear to have been of any large amount: it depended evidently on the partial detachment of the plastic substance, from the turgid mucous membrane (which is probably much more vascular than usual), and it increased with the progressive separation between them, but ceased soon after the expulsion of the former. The abrasion of the surface alone might prove a sufficient cause for this hæmorrhage, even if no immediate vascular connection existed between the mucous membrane and the tubular substance: this, however, is not at all improbable, as the false membrane in diphtheritis, in detaching itself from the mucous surface (by Bretonneau's account), leaves points, by which blood transudes. Andral would deny the existence of any blood-vessels between the mucous membrane, and these false membranes, had not Guersent affirmed that he had seen them ramifying on the latter in croup.

The cause of tubular bronchial expectoration would seem as yet not to be clearly defined. The disease, however, seems to be chronic inflammation of the mucous membrane of the bronchial tubes, of a specific kind.

As in croup, and pharyngeal diphtheritis, the exudation appears not to depend on the intensity of the inflammation so much as on some peculiar action of the parts producing it. Andral attributes the morbid secretion, in these diseases, to acute hyperæmia of the mucous membrane.

The inflammation may be confined to one lung, or may attack both simultaneously. In my second case, the left lung appeared to be alone affected, whilst in the first, both were equally involved.

Lieutaud, who in his "Synopsis" (obs. 392) relates a case of this disease in a child, attributes it to a scrofulous diathesis, with metastasis to the part so affected. Dr. Warren's case corresponds certainly in this respect with Lieutaud's, his little patient being of a strumous habit; and as a severe pain in her heel gradually increased (an abscess eventually forming at that part), so did the paroxysms of oppressed respiration become less frequent, and the expectoration of tubular substance diminished. This, however, may have been, and most likely was, a mere coincidence. Certainly, in those cases which have fallen under my notice, as occurring in the adult, no trace of such diathesis was apparent.

The disease is of too rare occurrence to enable us to pronounce whether it is hereditary or not. Still, the fact of two brothers, of different callings, and living in different places, having so rare a disease, tends very strongly to show, that it depends on some inherited peculiarity of constitution. The more severe complaint, which may be considered in some respects analogous to it, and to which the French authors have applied the term of "*Angine Couenneuse*," appears to be so occasionally. Thus, by Bretonneau's account, the Empress Josephine died from the effects of this disease; her daughter, Hortense, was for some time subject to it; the son of the latter died from an attack of croup, whilst her nephew, the Duke of Leuchtenberg, consort of the Queen of Portugal, fell a victim, at a later period, to a complaint of a similar nature.

Croup too is observed occasionally to attack members of the same family, though residing in different localities. The brothers, to whose cases I have alluded, both attribute their complaint to the use of stoves in their rooms.

Prognosis.—A fatal termination is not so much to be feared in this disease as in croup, or in pharyngeal diphtheritis. This may be accounted for, by taking into consideration, that the two latter diseases attack those parts of the respiratory apparatus which will permit of little obstruction, without causing the most alarming symptoms, viz. the trachea, or larynx, and the glottis; whilst a large number of the minute bronchial tubes may become impermeable to air for a time, without materially interfering with the vital functions. In those cases of tubular bronchial expectoration which I have seen or heard of in London, the patients, after the first or second attacks, have regarded their recurrence without any alarm. Dr. Willis mentioned to me the case of a gentleman suffering from this complaint (the only one he had met with of this description), in which, on first witnessing the expectoration, he naturally felt some anxiety, until his patient assured him that he was accustomed to it, and that it was of no consequence. Dr. F. Nicholls, in the "Philosophical Transactions," No. 398, narrates a case in which this hollow tubular substance was coughed up in greater or lesser quantity, for seven years, sometimes with, at others without blood, the patient remaining, all this time, stout and in good health. In Mr. North's two cases, likewise, the health was perfectly re-established after a time.

We have every reason, therefore, I think, to give a favourable prognosis as to the eventual result, in cases of this malady, when we are once assured as to its true nature, and that it is not complicated with phthisis, or other serious disease of the lungs. The higher the plastic formation takes place in the air-tubes, the more severe will be the symptoms, and should both of the larger bronchi be simultaneously attacked (a very rare occurrence indeed), extreme danger would naturally be apprehended.

When bronchial tubular expectoration is complicated with other diseases of the chest, the prognosis will of course be much more unfavourable, although the presence of the two diseases would seem to depend rather on coincidence, than on cause and effect. Tulpius, in his "Medical Observations," narrates a case of this description, occurring in a phthisical patient, attended with fatal hæmorrhage: "Excretis hisce surculis, effudisse ipsum ipsam cum sanguine vitam." Tulpius, however, as well as Bartholine, mistook these substances for blood-vessels of the lungs, thrown up by coughing. In Dr. Nicholls' second case, there was much hæmorrhage also, the patient, some time after, dying of phthisis. Morgagni's case (Epist. 21, Art. 20) occurred in a young person labouring under peripneumonia: "Qui materiem albam, pauxillò sanguinis tinctam, multoque muco obductam, qualem nunquam antea medicus viderat, et mox ante ipsam mortem, ramosum polypum bronchialem ejecit." De Haen (Rat. Med. t. 2,) mentions that his patient was suffering from pleurisy, when "materiem albam densam ejecit, oblongam ramosamque."

Treatment.—The rigorous discipline which has been adopted in some of these cases, appears unnecessary. I fell into this error, I think, in abstracting so large a quantity of blood in the first attack of hæmorrhage, which occurred in my second case; but the speedy expulsion of the tubular substance, after the faintness which accompanied it, fortunately prevented my following up the same active mode of treatment, as I then had the opportunity of recognizing the true nature of the complaint, and the cause of the previous hæmorrhage. It may, however, be a question, whether the syncope induced by the bleeding did not facilitate the separation of the false membrane, and cause its ejection at an earlier period than would otherwise have taken place. I believe that it is very seldom that bleeding from the arm will be required in this complaint, and that too only where congestion of the lungs occurs, when the abstraction of a small quantity of blood may afford relief.

Neither mercury nor iodine proved of much service in the cases which I have narrated; and in any future instances, I should feel disposed to rely more on the employment of ipecacuanha, squills, and other mild expectorants, conjoined with light diet, than on a more vigorous mode of treatment.

Dr. Warren mentions that, in his case, in which there was a short, dry, and almost incessant cough, with perspirations at night, great wasting, and attended by a sense of weight in the chest, but not of pain, much relief was obtained by the continued use of the oxymel scillæ.

Since writing the above, my friend, Dr. G. O. Rees, has mentioned to me the case of a woman in Guy's Hospital, who was lately admitted for severe bronchitis; but other anomalous symptoms supervened, which could not be explained. On a *post-mortem* examination, the whole of the bronchial tubes were found to be filled with a tubular substance, similar to what has been described, as were the trachea and larynx. Traces of pneumonia were observed in each lung, and, at these spots, no plastic matter could be found in the tubes.

A

TABULAR VIEW

OF THE

SEAT OF TUBERCLE,

IN ONE HUNDRED AND EIGHTY CASES OF TUBERCLE OF THE LUNGS IN CHILDREN,

WITH

REMARKS ON PULMONARY PHTHISIS IN THE YOUNG SUBJECT.

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In the following remarks I propose to indicate a few of the peculiarities which distinguish infantile consumption from the phthisis of adults, rather than to give any detailed history of phthisis as it occurs in the young subject. To attempt anything like a complete description of phthisis in children would occupy a much greater portion of the valuable time of this Society than I feel entitled to do.

The tabular analysis of the seat of tubercular deposit, which follows this paper, comprises 180 cases of thoracic tubercle in children: of these, 112 were observed consecutively and in the same year, at the Children's Hospital, Paris. They embrace all the cases of tubercular disease amongst the boys, and were noted down carefully, for the purpose of furnishing data for the history of pulmonary consumption in children. The remaining 68 cases were observed at various periods, and are not, therefore, of the same value in a statistical point of view.

The main character which distinguishes the phthisis of children from that of adults is this,—in children, the tubercular deposit occupies a much larger surface of the lung, is more rapidly secreted, and is complicated with tubercular disease of other organs more frequently than in the adult. Hence children often sink under phthisis before the complaint has arrived at its third stage; while, on the other hand, the modifications produced by an extensive diffusion of tubercular matter often render the diagnosis of the disease obscure and difficult. In addition to this character we have the peculiarities occasionally induced by excessive tuberculization of the bronchial glands, giving rise to bronchial phthisis, a form of disease altogether confined to the child.

The chief varieties under which tubercular deposit is found in the lungs of the young subject are those of miliary tubercle, yellow infiltration, and crude tubercle.

Miliary Tubercles.—These present no peculiarity worthy of notice; they exist more frequently than any other form of tubercle, either alone or in conjunction with other varieties of tubercular deposit, and are more abundant in the upper lobes than elsewhere.

Yellow Infiltration.—This form is chiefly found in children under three years of age, and is generally confined to one side of the chest, occupying a considerable portion of the lobe or lobes in which it is situate.

Tubercle.—Crude tubercle in the child, as in the adult, more frequently occupies the superior lobes than any other part of the lung. The left side is more frequently the seat of tubercle than the right. Of the 112 cases, only 11 are noted where the tubercular matter was confined to one side of the chest, and of these the left lung was the seat of tubercular matter in eight cases; the right lung in three. It has been asserted by many writers that in children the bronchial glands are more frequently tubercular than even the lungs. This is an error which I once shared myself, from drawing conclusions from a limited number of cases. In the 112 cases alluded to, the tubercular deposit was confined to the bronchial glands in 12 cases; to the pulmonary tissue in 12. In the 68 cases, however, which form the second portion of the Table, we find six cases in which the bronchial glands alone were tubercular, and one where the deposit was confined to the lung; but as I have already observed, these 68 cases were taken at hazard from a large number of scattered observations. It may here be remarked that three cases were noted of the existence of tubercle in the cavities of the head or abdomen, without any trace of tubercular deposit in the chest: in one, the matter was confined to the mesenteric glands; in a second, to the brain and mesenteric glands; in a third, to the mesenteric and inguinal glands. I mention this as a proof that M. Louis' law does not extend to children, a fact which, I believe, I was the first to point out, several years since.

Caverns.—Softened tubercles, or caverns, existed in 31 of the 112 cases, or in something more than one-fourth. The cavity occupied the *right* side of the chest in 12 cases; the *left* side in 11; and *both* sides in 8 cases. The superior lobes were affected in 18 cases; the inferior in 8; and both together in 4. But here an important modification is produced, according to the age of the child, giving rise to a circumstance which should guide the practitioner, whenever he seeks to determine the existence of cavern in young children. Experience proves that in children under five years of age the cavernous excavation is generally seated in the lower or middle lobes, and is almost always confined to one side of the chest. Thus in 11 cases of children under five years of age, affected with cavern, we find the following distribution:—

Age.	Seat of Cavern.
2 years	Summit of right lung.
2 ,,	Middle lobe of right lung.
5 ,,	Inferior lobe of right lung.
2 ,,	Upper part of left lung.
3 ,,	Middle of left lung.
3 ,,	Middle lobe of right lung.
2 ,,	Lower lobe of left lung.
2 ,,	Lower lobe of left lung.
2 ,,	Lower lobe of left lung.
4 ,,	Upper and lower lobes on both sides.
4 ,,	Summit of right lung.

Here we find only three cases out of eleven in which the cavern was seated in the superior lobe, and only one case where it occupied both sides of the chest. As the child approaches the age of twelve or fourteen years, the cavern occupies the upper lobes, and is often found in both lungs, as in the adult.

In children, then, we meet with two varieties of cavern; the one resembling that which occurs in adults, the other peculiar to the young subject. The latter variety is produced by the process of softening taking place in the midst of yellow infiltration, and is chiefly confined to children under three years of age. The whole of a lobe, or a considerable portion of the lung, is converted into a mass of infiltrated tubercular matter, in the centre of which we find a large anfractuous cavity, lined with softened tubercle. In some other cases we have a number of small irregular cavities disseminated through the mass of infiltration, or numerous caverns, not larger than peas or nuts, separated by intervals of healthy lung, but communicating with each other.

Complications.—It has been already remarked that the general diffusion of tubercular matter forms a striking characteristic of phthisis in children. This will be rendered more evident by a comparison of some of M. Louis' results with those deducible from my Table. In 358 cases of phthisis in adults, M. Louis mentions the existence of tubercular matter in the brain or its membranes only once. In the bronchial glands, tubercles were found in about one-fifth of the cases; in the mesenteric glands, in one-fifth; in the liver, only twice; in the kidneys, five times in 170 cases: on the other hand, ulceration of the larynx existed in one-fourth,—ulceration of the bowels in five-sixths of the cases.

The history of phthisis in children presents us with very different results. The brain was affected in one-ninth of the cases; the bronchial glands, in 100 out of 112; the mesenteric glands, in one-half; the liver, in one-ninth; the kidneys, in one-eighteenth; but ulceration of the larynx occurred only once; ulceration of the bowels, sixteen times in the 112 cases.

Symptoms.—In describing the symptoms of pulmonary phthisis in children, it is necessary to distinguish two forms of the disease. In one, which generally occurs in subjects of from ten to fourteen years of age, we find nearly the same lesions which characterise phthisis in adults, and the same series of symptoms. To this form I shall not recur. In younger children, when the principal lesion of the lungs consists in the deposit of miliary or grey granulations, of yellow infiltration, with the anfractuous caverns in the middle or lower lobes already alluded to. Where the other cavities of the body are, more or less, affected by the tubercular deposit, we have several peculiarities worthy of notice, and a modification of symptoms which often renders the diagnosis of the disease extremely difficult.

In cases of the kind now under consideration, the complaint is commonly acute from the commencement, and is accompanied by various signs of the tubercular diathesis. The child has irregular accesses of fever, with heat of skin, acceleration of the pulse, and slight flushing of the cheeks, while the rest of the face is pale and haggard. The tongue is often furred and red at the edges; the abdomen sometimes tumid, and the bowels irregular; the child may complain of head-ache and want of sleep; the appetite fails, and emaciation soon sets in. The patient is now seized with a small, short, dry cough, accompanied by oppression and acceleration of the breathing; there is no expectoration; on examining the chest, the physical signs are few and uncertain. When the miliary tubercles, or granulations, are sufficiently numerous and collected in the upper lobes, we may perceive a certain roughness in the respiratory murmur, and some prolongation of the expiratory sound; but these signs are frequently masked, either by the existence of other lesions in the chest, or by the tubercular deposit being seated in the middle or lower lobes. The presence of tubercular infiltration is indicated by feebleness, or absence of the respiratory murmur, with some dullness on percussion; but these signs are common to chronic pneumonia.

As the disease advances the cough becomes more severe and constant; the oppression of breathing is greater; and when the tubercles or infiltrated masses begin to soften, we have more positive signs of the existence of cavities in the lung. The physical signs, however, are rarely as well-marked as in the adult, and the young child frequently dies before the disease has made further progress, and before the practitioner has been able to decide whether the lung be actually the seat of cavern or not. The cause of this difference between the phthisis of adults and of children has already been alluded to; in the latter, the tubercular matter is widely diffused, and has implicated many important viscera; in the brain, it may excite hydrocephalus or meningitis; under the serous membrane of the chest, pleurisy; in the abdomen, peritonitis; in the intestines, tubercular ulceration. These complications rapidly undermine the resisting power of the little patient; diarrhœa sets in, and death ensues long before the period at which a fatal termination takes place in the adult. Should the patient, however, survive for any length of time, the complaint assumes a chronic character, and, with certain exceptions, resembles the pulmonary affection of adults. Chronic phthisis, in children of more advanced years than those of whom I have now spoken, presents so many points of resemblance to the same disease in the full-grown subject, that I shall not dwell on it, but pass to the consideration of *caverns.*

When the tubercular cavities occupy the same seat as in the adult, and are the result of chronic disease, they are readily distinguished by the ordinary physical signs, viz. dullness on percussion, cavernous respiration, pectoriloquy, and large mucous *râle*, or gurgling.

In children under five years of age these signs are very frequently wanting. It has been already observed that the middle and inferior lobes were the seat of the cavity in eight out of eleven cases of cavern occurring in children under five years. Whether this absence of cavernous signs depends on the seat of the cavity, on its anfractuous formation, or (as MM. Rilliet and Barthez have suggested) in the small calibre of the bronchial tubes in very young children, it is a circumstance worthy of note, and one which has frequently presented itself to observation. The signs of cavern may also be modified by the existence of enlarged bronchial glands; but the consideration of this point may be deferred until we come to speak of bronchial phthisis.

The *rational* symptoms of infantile consumption, also, present certain modifications, which I shall endeavour to enumerate as briefly as possible.

Cough.—This is one of the most constant symptoms; yet it is occasionally absent, or so trifling as hardly to attract attention during life. The characters of the cough are very variable: it may be dry, hard and short, or moist and soft; occasionally it occurs in paroxysms which bear considerable resemblance to those of hooping-cough, and in such cases there is much reason to apprehend that the paroxysmal nature of the cough depends on enlargement of the bronchial glands.

Respiration.—In the early stages of the disease the respiration is seldom accelerated; but as it advances, and the tubercular deposit becomes more copious, the respiration generally exceeds 40, and sometimes reaches 80, in the minute. The quickness of respiration and the difficulty of breathing may depend either on the presence of tubercular matter in the lungs, or on the various complications which attend the primary affection. In chronic phthisis the respiration is seldom much affected; in the chronic form, or when pneumonia is present, it follows the various stages of the disease, increasing with the lesion of the lungs, or becoming more free as the pulmonary tissue acquires a greater degree of permeability. The dyspnœa accompanying enlarged bronchial glands is altogether peculiar, and will be noticed apart.

Expectoration.—In adults the quality and character of the sputa furnish valuable indications of the nature of pulmonary disease. In the child such is not the case. Infants and children under five years of age hardly ever expectorate. They swallow everything that comes up into the mouth from the lungs. I have related, in another place, a very striking example of this fact. A child, two years old, died suddenly, from the rupture of a blood-vessel which traversed a cavern in the right lung. A very small quantity of blood had been discharged through the mouth, for the child had swallowed the greater part of it, and after death the stomach and duodenum were found full of enormous clots of blood, which were literally moulded on their surfaces. In children above five years of age we seldom observe the round, large, yellow sputa, or the mucus tinged with blood, which are seen in the phthisis of adults. The *débris* of tubercular matter rarely ever exists in the sputa of children: the expectorated matter is fluid, flattened, sero-mucous, or muco-purulent.

Hæmoptysis.—According to M. Louis, hæmoptysis occurs in two-thirds of the cases of adults labouring under phthisis. In children hæmoptysis is an exceedingly rare symptom. Sir James Clark says, "I do not remember to have met with any case in which it was present;" neither did MM. Rilliet and Barthez observe a single example in the numerous cases which came under their observation. I have been either more fortunate or more accurate. In the 112 cases hæmoptysis was observed five times, and a few other cases were noted, in which spitting of blood was said to have occurred, previous to the child's admission into hospital. The quantity of blood expectorated may vary from the few striæ which tinge the sputa to several ounces. In two cases it was sufficiently abundant to cause sudden death. The effusion of blood in considerable quantity may arise from pulmonary apoplexy, from rupture of a vessel traversing a cavity, or from perforation of one of the large blood-vessels of the chest by an enlarged bronchial gland. The age of the patient seems to have some influence in the production of this symptom; all the children, in whom spitting of blood occurred, were more than nine years of age.

Hectic fever.—The symptoms which constitute hectic fever in adults are seldom present together in any marked degree, except in children near the age of puberty. The evening exacerbations, night sweats, acceleration of pulse and hectic flush, are oftener replaced by emaciation, loss of strength, and paleness of the skin. In adults, hectic fever is generally an attendant on caverns; in children the analogous symptoms often appear long before the tubercles have passed into the stage of suppuration.

Diagnosis.—Allusion has already been made to the difficulty of diagnosis in many cases of infantile consumption. When the tubercular deposit is equally disseminated in both lungs, and the disease assumes the acute character, the medical attendant will often be compelled to wait and observe the progress of the complaint before he can distinguish it from lobular pneumonia; and, even then, he will too frequently find cause for hesitation and doubt. The chief question to be decided is, whether the febrile symptoms, cough, &c. depend on simple pneumonia, or on the more insidious and dangerous form accompanied by tubercle or tubercular infiltration. This is a question which must often present itself to the practitioner. To examine it satisfactorily would lead me into details much beyond the limits which I have assigned to this paper. The main points of distinction between the two forms of disease have been clearly pointed out by MM. Rilliet and Barthez, and are,—1st. Their progress and duration: lobular pneumonia generally extends to the neighbouring portion of the lung in a few days, and its physical signs become more positive, while those of tubercle continue stationary and unchanged for a much longer period. 2nd. The period at which bronchial respiration occurs: in simple pneumonia at an early stage; in tubercle at a more advanced one. 3rd. The seat of the bronchial respiration: in tubercular disease very frequently at the summit of the lungs; in lobular pneumonia more often at the middle or lower portions.

Finally, as MM. Rilliet and Barthez have observed, we must not overlook " the influence exercised by the various *râles* which accompany bronchitis, and so often mask the signs of tubercle. These *râles* render obscure or altogether conceal the symptoms of granulations and miliary tubercles, by rendering it impossible to distinguish the roughness of the respiratory murmur or the prolonged expiration; they also conceal the absence of the respiratory sound in tubercular infiltration; they become confounded with the moist *râles* indicative of cavern, or mask the bronchial respiration of pneumonia. In fine, when the bronchial tubes are dilated, or the bronchial glands considerably enlarged, they may acquire a peculiar bronchial tone, or be scarcely distinguishable from the gurgling of a cavern."

Children of weakly constitutions, who have been long subject to chronic disease and worn down by diarrhœa, are often attacked towards the close of life by a peculiar form of pneumonia. This variety bears a very close resemblance to chronic phthisis, and the diagnosis must, in all cases, be doubtful. The one disease is, however, just as fatal as the other.

Bronchial phthisis.—The bronchial glands are, as has been shown, involved in a great majority of cases of infantile consumption. They were more or less tuberculated in one hundred out of one hundred and twelve cases. In a few of these cases only were the glands sufficiently enlarged to produce symptoms through their mechanical effects, or by communicating with caverns in the lungs and the bronchi, and to such cases the term bronchial phthisis should be confined. Understood thus, this form of phthisis is peculiar to children, and attended with very characteristic symptoms; but it is not, as some writers assert, of frequent occurrence.

The enlarged bronchial glands may act mechanically on the neighbouring organs contained in the chest, or they may perforate them. Hence a variety of symptoms, depending on the position or function of the injured part.

The aorta and pulmonary artery, the vena cava, or the pulmonary veins, may be compressed by the tuberculated glands, and the flow of blood more or less impeded. M. Tonellé has related a case in which the superior cava was completely obstructed, and I have seen one where the pulmonary artery was perfectly flattened between two enormous glands. From the compression of vessels may arise pulmonary apoplexy, fatal hæmorrhage, effusions of serum, or symptoms closely resembling those of organic disease of the heart. The trachea, bronchial tubes, and lungs, may be compressed, and in such cases the symptoms will vary considerably, according to the seat and extent of the mechanical lesion. When the ganglions act on the lower portion of the trachea, MM. Rilliet and Barthez have noticed the existence of a loud, sonorous ronchus, which persists for a considerable length of time. In other cases, the pressure on the large bronchial tubes causes more or less feebleness of the respiratory murmur, which is remarkable in being intermittent.

Pressure on the eighth pair of nerves or its branches is often attended by very peculiar modifications of the voice and cough. The former is hoarse or occasionally subdued, and even lost; or the hoarseness and loss of voice may alternate. The cough, also, is frequently hoarse, or occurs in fits which bear a close resemblance to those of hooping-cough, but are not followed by vomiting; or the fits may simulate accesses of asthma, with great oppression of breathing, anxiety, agitation, congestion of the head, and cold, viscid sweats.

The enlarged or softened glands give rise to another order of symptoms, by perforation of the neighbouring parts. Thus fatal hæmorrhage may arise from perforation of the pulmonary artery; pneumo-thorax from perforation of the lung; difficulty of deglutition and accesses of cough on swallowing from perforation of the œsophagus; but we should observe that these symptoms may equally depend on the presence of tubercular matter or of a cavern in the lungs.

The *diagnosis* of this form of phthisis in children must be founded on the preceding peculiarities in the progress of the case and the history of symptoms. Whenever a child presents several of the rational symptoms of consumption, without our being able to detect any physical signs of the presence of tubercles in the lungs or abdomen, we have good reason to suspect that the bronchial glands are tuberculated. As long as the case continues to present this simple aspect we cannot go beyond suspicion: but it rarely happens that the glands acquire a considerable degree of development, without acting on the surrounding parts or tissues. As these become successively involved, we have a series of varying symptoms which could not arise from any other source. The eyelids become œdematous, and in proportion to the degree of pressure on the vena cava, the œdema extends to the whole of the face, which is sometimes pale, sometimes tinged with venous injection. This œdema will appear and disappear several times during the course of the disease. The cough suddenly changes its character, and occurs in fits, like those of hooping-cough; the voice gets hoarse, and for days may be altogether lost; fits of asthma or of suffocation, as if the heart were diseased, occur. On examining the chest, we hear a loud sonorous ronchus, which persists for a length of time, and then disappears, or is replaced by other *râles* of an anomalous character. When these symptoms are superadded to the rational signs of phthisis, we can have little hesitation in deciding that they arise from tubercular enlargement of the bronchial glands.

Treatment.—Upon this important point I regret to say that I have nothing to offer; in the child, as in the adult, our treatment is nearly reduced to a palliation of the symptoms. The method of treatment, by emetics, should not be adopted in children, lest irritation of the abdominal viscera hasten the deposit of tubercle in the abdomen, to which the patients are, already, too prone. Counter-irritation to the chest must be carefully regulated, and cannot be pushed as far as in the adult; and during the acute stage, the administration of tonics must be watched with the greatest attention.

Although the deposit of tubercular matter takes place, under *unfavourable* circumstances, more quickly than in the adult, and often leads to death in a more rapid manner, yet I believe that under *favourable* circumstances of change of climate, attention to hygiène, &c., we have a much greater chance of arresting the progress of incipient tubercle in the child, and thus, perhaps, of obtaining a permanent cure. Hence there is much encouragement for the early adoption of such measures as experience has sanctioned; and I am strongly inclined to think that if they were more frequently had recourse to, on the occurrence of the first signs of a tubercular affection in children, we should often have the satisfaction of seeing our efforts crowned with success.

Tabular View of the Seat of Tubercle in 180 *Cases of Tubercle of the Lungs in Children* (*all Boys*).

Name.	Age.	Seat of Tubercular Deposit.
1. Fessing.	4	Tubercles in the cerebrum, cerebellum, lungs, pleura, bronchial glands, liver, spleen, mesenteric and hepatic glands.
2. Jacquenot.	2	Pulmonary granulations, without tubercles; chronic pneumonia.

Name.	Age.	Seat of Tubercular Deposit.
3. Visil.	3	A tubercular mass in the inferior lobe of the right lung, with some granulations in other parts of the lungs, and of gangrene of the mouth.
4. Jauny.	11	Tubercular masses at the summit of both lungs; tubercles in the bronchial glands.
5. Mativié.	9	Miliary tubercles in pia mater, pleura, lungs, bronchial glands and spleen. Died of meningitis.
6. Noël.	15	Tubercles in the bronchial glands only.
7. Desportes.	6	Cretaceous tubercles in the lungs. Died of cholera.
8. Bastard.	14	Cretaceous tubercles in the lungs and bronchial glands; cicatrix of an old cavern. Died of pericarditis.
9. Vernier.	7	Tubercles in the left lung, in the pleura, bronchial glands, and spleen. Died of pleurisy.
10. Montel.	4	Cavern at the summit of left lung; tubercles in the pleura, bronchial glands, liver, spleen, and kidneys.
11. Lafitte.	6	Tubercular granulations in the lungs, pleura, liver, spleen, and kidneys; tubercles in, bronchial and mesenteric glands; tubercular ulceration of intestines.
12. Billiet.	2	Tubercles in lungs, pleura, liver, spleen, bronchial and mesenteric glands; ulceration of intestines.
13. Lejeune.	14	Tubercular granulations in the pia mater, lungs, and pleura.
14. Chapelle.	7	Two enormous caverns in the superior lobes on both sides of the chest; crude tubercles in various parts of the lungs and bronchial glands; in liver and spleen, mesenteric and abdominal ganglia; tubercular mass in right kidney; ulceration of intestines.
15. Krug.	7	Sub-pleural granulations; two or three bronchial glands tubercular. Died of phlebitis.
16. Niot.	4	Tubercles in lungs, bronchial and mesenteric glands, and spleen. Died of gangrene of lung.
17. Chevalier.	4	Sub-pleural granulations on left side of chest; no tubercular deposit elsewhere. Died of typhoid fever.
18. Thiellant.	19 months	Tubercles in cerebrum and cerebellum, in membranes of brain, pleura, lungs, and bronchial glands. Died of chronic hydrocephalus.

Name.	Age.	Seat of Tubercular Deposit.
19. Billiet.	6	Three or four small tubercles in left lung; none elsewhere. Died of small-pox.
20. Mourgue.	11	Tubercles in the cerebellum and pons Varolii, lungs, bronchial and mesenteric glands, liver, spleen, and bladder; ulceration of intestines.
21. Durand.	11	Tubercles in the bronchial glands; none elsewhere. Died of typhoid fever.
22. Lahizide.	14	Cavern in summit of right lung; no tubercles in left lung; none in bronchial glands; tubercles in liver; ulceration of intestines.
23. Landormi.	5	Tubercles in cerebral membranes, lungs, and bronchial glands.
24. Beaufils.	4	Tubercles in bronchial glands only. Died of hooping-cough.
25. Richer.	2	Tubercles in lungs, bronchial and mesenteric glands; cavern at summit of right lung.
26. Lefevre.	4	Caverns in the right superior and left inferior lobes; tubercles in the bronchial and mesenteric glands, and in lungs; ulceration of intestines.
27. Duval.	8	Tubercular mass in lower part of inferior lobes; none elsewhere.
28. Bachellier.	2	Grey granulations in right lung; a few in left; none elsewhere. Died of angina.
29. Dulis.	4	Bronchial glands tubercular; no deposit in any other part.
30. Villett.	2	Cavern and tubercles in middle lobe of right lung; bronchial and mesenteric glands tubercular; liver fatty.
31. ———	2	Tubercles in both lungs—more numerous below than above; in mass on left side; in granulations on right side; bronchial and mesenteric glands tubercular; one tubercle in hemisphere of brain.
32. Guerin.	3	Tubercles in bronchial glands and under pleura; none elsewhere. Died of pneumonia.
33. Tiery.	2	Tubercular deposit in bronchial and mesenteric glands. Died of softening of intestines.
34. Goinet.	2	Tubercle in left lobe of cerebellum and in bronchial glands.
35. Batot.	2	Tubercles in lungs and glands of chest and abdomen. Died of pneumonia.
36. Ferand.	7	Tubercles in pia mater, lungs, thoracic and abdominal glands, liver, and spleen; ulceration of intestines.

Name.	Age.	Seat of Tubercular Deposit.
37. Aufray.	5	Tubercles and three caverns in inferior lobe of right lung; some tubercles in other lobes; none in left lung; a few in bronchial glands.
38. Poutriquet.	3	Tubercles in bronchial glands only. Died of scarlatina.
39. Legros.	5	Miliary tubercles in lungs; tubercles in bronchial and mesenteric glands, pleura, liver, and spleen; ulceration of intestines. Died of hooping-cough.
40. Monley.	12	Cavern at summit of right lung, and granulations; tubercular mass softened in centre, in lower lobe of left lung; tubercles in abdominal and bronchial glands; ulceration of intestines; granulations of pia mater.
41. Jobard.	5	Large cavern at summit of both lungs; tubercles in bronchial and mesenteric glands and spleen; ulceration of intestines.
42. Hurdibier.	12	Some cretaceous tubercles at the summit of right lung, with appearance of an old cavern healed. Died of scarlatina.
43. Bernard.	7	Tubercles in the brain and its membranes in pleura and bronchial glands; tubercular masses in inferior lobes of both lungs, in mesenteric glands, liver, spleen, and kidney.
44. Bagejot.	3	Tubercles in bronchial glands; none elsewhere. Died of pleurisy.
45. Menier.	22 months	Grey granulations under pleura; none elsewhere. Died of pleurisy.
46. Gation.	2	Grey granulations in both lungs; tubercles in bronchial glands; none elsewhere.
47. Kifer.	4	Tubercles in cerebrum and pia mater, in lungs and bronchial glands.
48. Nonot.	4	Tubercles in brain, lungs, bronchial glands, pleura, liver, spleen, and mesenteric glands.
49. Chantelier.	2	Grey granulations in inferior lobe of left lung; none elsewhere. Died of hooping-cough.
50. Hernoult.	6	Tubercles in both lungs.
51. Lemoine.	4	Tubercles in lungs and bronchial glands.
52. Desportes.	4	Tubercles in mesenteric glands; none elsewhere.
53. ———	13	Softened mass in upper lobe of left lung; no tubercular deposit in the right; tubercles in peritoneum, spleen, liver and intestines, bronchial and mesenteric glands.

Name.	Age.	Seat of Tubercular Deposit.
54. ———	12	Tubercles in lungs, bronchial glands and spleen; softened tubercular mass in upper lobe of right lung.
55. Cerbourg.	5	Tubercles in lungs, bronchial glands, and spleen.
56. ———	3	Tubercles in lower lobe of left lung, and bronchial glands.
57. Tellier.	2	Cavern in upper part of left lung; tubercles in lungs and bronchial glands.
58. Ricoult.	6	Tubercular deposit in bronchial glands; none elsewhere. Died of scarlatina.
59. Mathier.	3	Tubercles in bronchial glands and lungs; several small caverns in upper and lower lobes on right side of chest.
60. Couillier.	10	Tubercles in left lung, in bronchial and mesenteric glands, and under peritoneum. Died of peritonitis.
61. Paillet.	3	Tubercles in lungs, pleura, and bronchial glands; miliary granulations in lung also; cavern in left side, between superior and inferior lobes. Died of hooping-cough.
62. Rebet.	2	Tubercular deposit in bronchial glands; none elsewhere. Died of pneumonia.
63. Payen.	2	Tubercles in lungs and bronchial glands; cavern in lower lobe of left lung. Died of hooping-cough.
64. Dehurper.	2	Tubercles in bronchial glands; none elsewhere.
65. Delacroix.	3	Tubercles in lungs and bronchial glands. Died of scarlatina.
66. Naret.	2½	Tubercles in lungs, pleura, bronchial glands, liver, spleen, mesenteric glands and peritoneum.
67. ———	3	Tubercles in lungs, bronchial and mesenteric glands.
68. Chatellord.	6	Tubercle in brain; caverns in the lung on left side; tubercles in bronchial glands, pleura, spleen, kidneys, and peritoneum.
69. Benon.	8	Cavern in inferior lobe of right lung; tubercles in lungs, bronchial and mesenteric glands.
70. Mengant.	8	Two large caverns in both upper lobes, and one small one in right middle lobe; tubercles in pleura, bronchial and mesenteric glands; ulceration of intestines.
71. François.	2	Tubercles in bronchial glands; none elsewhere. Died of pneumonia.

Name.	Age.	Seat of Tubercular Deposit.
72. Lardenois.	2	Tubercular mass softened in middle, in the centre of left lower lobe; miliary tubercles in lungs; tubercular deposit in bronchial and mesenteric glands. Died of gangrene of mouth.
73. Michel.	3	Tubercles in summit of right lung; none in left lung; tubercular deposit in bronchial glands. Died of pneumonia.
74. Nuet.	2	Tubercles in both lungs, in bronchial and mesenteric glands, and in spleen.
75. Montmartre.	2	Tubercles in bronchial glands only. Died of pneumonia.
76. Chenet.	12	Small caverns in both sides; tubercles in lungs, bronchial and mesenteric glands, epiploon, and spleen. Ulceration of intestines.
77. Coricon.	6	Tubercles in lungs, glands of chest and abdomen, and under mucous membrane of intestines.
78. Police.	5	Tubercles in lungs, bronchial and mesenteric glands, and under intestinal membrane. Died of hooping-cough.
79. Humanery.	9	Tubercles in brain, lungs, bronchial glands, and peritoneum.
80. Lange.	9	Cavern in right lower lobe; tubercles in bronchial and mesenteric glands, spleen, and under peritoneum.
81. ———	4	Tubercles in lungs and bronchial glands.
82. Coillet.	8	Cavern in upper lobe of left lung; tubercles in bronchial glands, mesenteric glands, and spleen; ulcerations of intestine and larynx; fatty liver.
83. Corvert.	8	Granulations in lungs; tubercles in several organs of abdomen.
84. Mony.	11	Cavern in upper right lobe; crude tubercles in other lobes; none in left side; tubercles in bronchial glands; tubercular peritonitis. Liver fatty.
85. Surette.	2	Tubercles in lungs, bronchial and mesenteric glands.
86. Trellu.	6	Tubercular meningitis; tubercles in lungs, bronchial and mesenteric glands: three or four small caverns in summit of left lung; ulceration of stomach and intestines. Fatty liver.
87. L'Eveque.	7	Tubercles in bronchial glands only.
88. Lemoni.	2	Cavern in lower left lobe; tubercles in bronchial and mesenteric glands; fatty liver.

Name.	Age.	Seat of Tubercular Deposit.
89. Travaillé.	8	Cavern in lower left lobe; tubercles in bronchial glands.
90. Bellormi.	6	Tubercular mass in summit of right lung; tubercles in bronchial and mesenteric glands, in liver and spleen. Ulceration of intestines.
91. Puton.	3	Tubercles in lungs, and ganglia of chest and abdomen.
92. Carpentier.	1½	Tubercles in lungs, and ganglia of chest and abdomen.
93. Laremy.	3	Tubercles in lungs and bronchial glands; fatty liver. Died of gangrene of mouth.
94. Taravil.	2	Tubercles in lungs.
95. Savogin.	8	Tubercles in lungs and bronchial glands.
96. Guerin.	4	Caverns in both lungs, in upper and lower lobes; tubercles in abdominal and thoracic glands.
97. Lacoste.	2	Tubercles in lungs, bronchial glands, and spleen.
98. ———	9	Tubercles in lungs, bronchial and mesenteric glands.
99. Amorte.	4	Tubercular deposit in bronchial glands only.
100. Blondel.	2	Tubercles in cerebellum and lungs, in bronchial and mesenteric glands and spleen; two caverns in lower lobe on right side; fatty liver.
101. Audriftet.	14	Tubercles in lungs and in bronchial and mesenteric glands; ulceration of intestines. Died of hæmoptysis.
102. Farne.	3	Granulations in lungs only; more numerous below than above; none elsewhere. Died of hooping-cough.
103. Gabriel.	11	Tubercles in lungs, bronchial and mesenteric glands, and spleen, and under intestinal membrane.
104. Boulanger.	7	A single tubercle in lower lobe of left lung; none elsewhere.
105. Lecompte.	3	Tubercles in lungs and glands of chest and abdomen.
106. Marchand.	14	Cavern in upper lobe of right lung; tubercles in bronchial and mesenteric glands, and under mucous membrane of intestines.
107. Maire.	5	Caverns at summits of both lungs; tubercles in lungs, and bronchial and mesenteric glands.
108. Monille.	4	Cavern at summit of right lung; fatty liver.
109. Badurst.	2	Tubercular deposit in both lungs; none elsewhere. Died of hooping-cough.

Name.	Age.	Seat of Tubercular Deposit.
110. Marquet.	2	Tubercles in lungs, bronchial glands, and spleen.
111. Robert.	4	Tubercles in lungs.
112. Boet.	2	Tubercles in lungs, none elsewhere.
113. ———	3	Numerous small cavities in upper lobe of right lung; no tubercles elsewhere.
114. Brouet.	8	Miliary tubercles in both lungs, and in bronchial glands; tubercle in brain.
115. Vanier.	9	Tubercles in brain, liver, spleen, kidneys, bronchial and mesenteric glands; caverns in upper lobe of left lung, tubercles in right lung; ulceration of stomach and intestines.
116. Masson.	10	Large cavity in upper part of right lung; tubercles in lungs, bronchial, and mesenteric glands, and in brain.*
117. Desibier.	9	Cavities in upper lobes of both sides; white and grey granulations under pleura and peritoneum; ulceration of intestines; tubercle in brain.
118. Briard.	13	Cavities in upper lobes of both lungs; tubercles throughout; tubercle of spinal marrow; tubercles in submucous membrane of intestines; ulceration of intestines.
119. Mettaver.	7	Cavern in summit of left lung; tubercles in lungs and bronchial glands; tubercle in brain.
120. Berille.	7	Miliary tubercles in lungs; tubercular deposit in bronchial glands; tubercular meningitis.
121. Soiné.	2½	Numerous grey granulations throughout lungs; none elsewhere.
122. ———	4	A few grey granulations under pleura; bronchial glands tubercular. Died of typhus.
123. Houdricon.	12	Two or three tubercles at upper part of right lung, with appearance of cicatrix of old cavern near them. Died of scarlatina.
124. Libant.	7	Tubercular deposit in liver and bronchial glands. Died of hooping-cough.
125. Laloix.	5	Large tubercular masses in bronchial glands; none elsewhere.
126. Camussat.	5	Tubercles in lungs and bronchial glands; granulations under serous membrane of chest and abdomen; tubercular meningitis.
127. Arnaud.	8	Caverns in both upper lobes; tubercles in lungs and mesenteric glands; tubercular meningitis.

	Name.	Age.	Seat of Tubercular Deposit.
128.	Fournier.	10	Miliary tubercles of lungs; tubercles in bronchial and mesenteric glands, spleen, liver, and peritoneum; tubercular meningitis.
129.	———	8	Tubercles in lungs and bronchial glands, spleen, and under peritoneum; tubercular meningitis.
130.	Vansort.	7	Tubercle at summit of right lung.
131.	D'Hainot.	8	Miliary tubercles in lungs; bronchial glands tuberculated; extensive tubercular disease of abdomen; ulceration of intestines.
132.	Maillard.	12	Miliary tubercles in lungs; in spleen; large masses in bronchial glands; tubercular meningitis.
133.	Baude.	22 months	Tubercles in lungs, bronchial and mesenteric glands, and brain.
134.	Soillot.	6	Large cavern in summit of right lung, and two small caverns in left lung; tubercles in other lobes; in mesenteric glands, and under peritoneum.
135.	Durand.	14	Large cavern in upper lobe of left lung: tubercles in lower lobe, and bronchial glands.
136.	Leture.	3½	Tubercles and granulations in left lung; bronchial glands tubercular; tubercular meningitis.
137.	Landormi.	5	Tubercles in right lung, bronchial glands, and brain.
138.	Boudin.	11	Caverns at summit of both lungs; tubercles in lungs, in peritoneum, and brain.
139.	Divé.	7	Miliary tubercles of lungs; tubercles of bronchial glands, and spleen, and brain.
140.	Gautier.	4	Miliary tubercles of lungs; tubercles of bronchial glands, of liver, and kidney; ulceration of intestines.
141.	———		Tubercles in two mesenteric ganglia, in cerebrum and cerebellum; *none in chest.*
142.	Pisochet.	6	Miliary tubercles of lungs; tubercles of bronchial glands, and brain.
143.	Moissonet.	11	Miliary tubercles in lungs; tubercles of bronchial and mesenteric glands, and under peritoneum; two granulations in kidney; tubercular meningitis.
144.	Guinon.	4	Tubercles in lungs, and under peritoneum.
145.	———	6	Tubercular masses in bronchial glands; none elsewhere.
146.	Mottier.	8	Grey granulations in both lungs; bronchial and mesenteric glands tubercular; granulations in cerebral membranes.

Name.	Age.	Seat of Tubercular Deposit.
147. Berillé.	7	Tubercles in right lung, and right bronchial glands; in spleen, and under pleura.
148. Trou.	10	Granulations in right lung; large mass in bronchial glands, and in abdomen; tubercular meningitis.
149. Petit Jean.	2	Tubercles in lungs, bronchial glands, liver, and spleen, ulceration of intestines.
150. Bache.	2	Bronchial glands tubercular; no tubercle elsewhere.
151. Hervy.	4	Tubercles in right lung, and right bronchial glands; mesenteric glands tuberculated; ulceration of intestines.
152. Caguy.	8	Tubercles in lungs, and immense mass in bronchial glands; also in mesenteric glands; tubercular meningitis.
153. Guinet.	12	Softened tubercle in right middle lobe; some granulations in both lungs; bronchial and mesenteric glands tuberculated; tubercles in liver, spleen, and brain.
154. Marandat.	12	Tubercles in lungs, bronchial and mesenteric glands, and spleen.
155. Patu.	9	Tubercular deposit under right pleura, and in brain; also in bronchial glands.
156. Andonat.	10	Abdominal glands partly cretaceous, partly tubercular; *not a single tubercle in chest*; ulceration of intestinal canal.
157. Rouget.	4½	Caverns in left lung, communicating with large bronchial tube; tubercles in lungs and bronchial glands.
158. Daring.	7	Tubercles in lungs, pleura, bronchial and mesenteric glands, liver, spleen, and right kidney.
159. Bottier.	7	Tubercles in right lung, and bronchial glands.
160. Bouvart.	13	Caverns in upper lobes of both lungs.
161. Florentin.	3	Tubercles in lungs, bronchial and mesenteric glands; fatty liver.
162. Chausson.	2	Tubercles in lungs, bronchial and mesenteric glands, spleen, and liver; ulceration of intestines.
163. Folliot.	11	Caverns at summits of both lungs; tubercular infiltration of both; bronchial and mesenteric glands tubercular.
164. Damont.	12	Caverns in both upper lobes; tubercles in lungs; ulceration of intestines.
165. Argond.	3	Tubercles in lungs, bronchial and mesenteric glands.
166. Lemoine.	5	Granulations in left lung.

Name.	Age.	Seat of Tubercular Deposit.
167. Tournois.	14	Caverns in right lung; miliary tubercles in both; ulceration of intestines.
168. Montesque.	11	Tubercles in lungs, in bronchial and mesenteric glands; ulceration of intestines.
169. Foudrion.	13	Cavern in summit of left lung; tubercles in both lungs; in bronchial glands also; tubercular peritonitis.
170. Lecrec.	13	Cavern in summit of right lung; tubercles in lungs and bronchial glands.
171. Lessin.	9	Tubercular deposit in bronchial glands; none in lungs; tubercular peritonitis; ulceration of intestines.
172. Habert.	2½	Tubercular deposit in bronchial and mesenteric glands.
173. Courier.	10	Cavern in upper lobe of left lung, and tubercles in lungs, in pericardium, and lumbar ganglia; large mass in bronchial glands.
174. Rose.	4	Tubercles in lungs, bronchial and mesenteric glands, liver, spleen, kidneys, and serous membranes.
175. Boulet.	13	Caverns in upper lobe of left lung; bronchial and mesenteric glands tubercular; tubercles in spleen.
176. Reiné.	11	Caverns in summits of both lungs; miliary tubercles in both; mesenteric glands tubercular; ulceration of intestines.
177. Beaumont.	14	Cavern at summit of left lung, and in middle lobe of right lung.
178. Bombard.	10	Cavern at summit of right lung.
179. Pacot.	2	Tubercles in lungs and bronchial glands; in mesenteric glands also; ulceration of intestines.
180. Jumal.	13	Cavern in upper left lobe; tubercles and granulations in both lungs; granulations in liver and spleen; mesenteric glands tubercular; ulceration of epiglottis and larynx.

CASE

OF

TUMOUR IN THE RIGHT HYPOCHONDRIUM,

OCCURRING AFTER INJURY,

FROM WHICH A LARGE QUANTITY OF FLUID RESEMBLING BILE WAS REPEATEDLY WITHDRAWN BY THE OPERATION OF TAPPING.

By WILLIAM ROBERT BARLOW, Esq.,
WRITTLE, ESSEX.

Communicated by EDWARD STANLEY, F.R.S.,
PRESIDENT OF THE SOCIETY.

READ MAY 14th, 1844.

On the 28th of August, 1843, I was called upon to visit Joseph Malyon, aged 54, a thatcher, a strong healthy man, who had injured himself by lifting a heavy ladder.

He complained of so much pain in the region of the liver, that I apprehended a rupture of that organ. He was very faint, in a cold perspiration, and the pulse was scarcely to be felt.

I ordered him a small quantity of brandy-and-water, and he recovered sufficiently to be removed to his own house, which was about three miles distant. I gave him five grains of calomel, and one of opium at night, and one ounce of castor oil the following morning, which operated, and produced several natural evacuations.

August 29th.—The pain was very much increased over the seat of the injury, and there was great tenderness upon pressure; the pulse was full and hard.

I took away sixteen ounces of blood, which relieved him considerably, and continued the calomel and opium, with a dose of saline mixture every five hours.

30th.—He was freer from pain; I ordered him an aperient draught, which operated, but the motions were nearly white, with no appearance of bile, and the urine was dark, and similar to that of a person with jaundice. He took five grains of blue pill every six hours.

31st.—He continued much the same.

September 1st.—As the pain had very much increased, I bled him to eighteen ounces; the blood was much inflamed. He was relieved by the bleeding. The urine and evacuations as before.

2nd.—The pain and tenderness had returned. Twenty leeches were applied, and he continued the same medicine.

4th.—The symptoms being yet urgent, a blister was applied; he took blue pill till the 8th without affecting the gums. On this day, the evacuations and urine were still unaltered. The blister was again applied, and the same medicine continued till the 15th, when a swelling, the size of a walnut, was observed over the region of the liver, to which was applied an ointment of equal parts of ung. iodinii, and ung. hydrarg.; and as he was very weak, I prescribed one grain of quinine three times a-day. He continued using the ointment, and taking this medicine, until the 9th of October, the swelling gradually increasing.

He now suffered great pain from distension; and from the swelling being limited to the right hypochondrium, and no bile having yet passed by the bowels, I felt confirmed in an opinion which I had formed in the first instance, that a rupture of the liver, involving the biliary ducts, had occurred.

Upon consulting with my brother and son, it was agreed to tap him, which I did over the region of the liver, where the swelling pointed, and drew off seven quarts of fluid, which from the colour and taste, appeared to be pure bile. He was instantly relieved, and the swelling entirely subsided.

Calomel and opium were administered at night, with aperient medicine in the morning. He passed a very good night, and the pulse, which previously to the operation was 100, was now reduced to 90. The diet consisted chiefly of milk and broth. Calomel and opium were continued at night, with diuretic medicine.

As the fluid gradually re-collected, I tapped him again on the 21st, drawing off six quarts and a half of fluid, which having been analysed by Dr. Pereira, Dr. G. O. Rees, and Mr. Taylor, was found to contain bile.

(I regret to say that I have mislaid the observations of Dr. Pereira, but they coincided with those of Dr. Rees and Mr. Taylor, which I shall here insert.)

"The liquor is *full of bile*. There is, doubtless, a communication between the tumour and the liver. It is to be remembered that pure bile, undiluted as it flows from the liver, is not *very bitter*, not nearly so much so as that contained in the gall-bladder.—— If I were to be allowed a guess, I should say the specimen in the bottle you gave me was composed of at least eight-tenths of bile to two of foreign matters. There is the peculiar mucus of bile in considerable quantity floating about.

"G. OWEN REES."

"The fluid left with me by Mr. Quekett contains albumen, biliary matter, and the colouring matter of the bile. It may be regarded as a serous fluid mixed with bile, and is most probably contained either in a dilated gall-bladder, or in some cyst communicating therewith.

"THOMAS TAYLOR."

I prescribed a mixture of iodide of potassium with infusion of gentian, three times a-day: the bowels continued regular without the use of aperients.

October 31st.—He was tapped again, and seven quarts drawn off. On November 9th, the operation was repeated for the fourth time, Dr. Vade being present, when six quarts were evacuated. The diuretic medicine was continued, and he was also ordered a cream of tartar drink.

On the 18th of November I took him to St. Bartholomew's Hospital, where he was admitted under the care of Mr. Lawrence, and was also seen by Mr. Stanley.

Mr. L. tapped him in the same situation where he had been pierced with the trocar before, and nine pints of fluid escaped.

He was ordered milk diet, with an aperient occasionally. He left the Hospital on the 25th.

I tapped him on the 26th, Mr. W. F. Barlow, my eldest son, being with me. Only three pints flowed this time, and the cyst was not emptied as on the previous operations, and he suffered extreme pain from the tapping, which he had not formerly done. I instantly gave him a drachm of tinct. opii, which relieved him in about an hour.

27th.—Some castor oil was administered, and a small quantity of bile was observed in the motions, whilst the urine was not so highly coloured as usual. The swelling gradually subsided.

December 3rd.—The motions were now a proper colour, containing plenty of bile: he discontinued medicine, and towards the end of this month, he became quite convalescent; and I am happy to add, that by the commencement of February 1844, he was able to walk the distance of eight or ten miles, and still appears to be in good health.

I will offer but one or two comments on this very interesting case, preferring to invite the discussion of the members of this learned Society. The way in which the accident occurred, the escape of bile which took place in consequence, and which was evacuated by tapping in such vast quantities from time to time,—the result which unexpectedly followed the last operation, after which the bile was no longer poured out of its normal course, but flowed through its proper channels as before, whilst the patient quickly regained his health and strength—these are interesting points for observation.

One thing is plainly deducible from the present case; it is, that an unfavourable prognosis should not be formed too hastily, where the biliary ducts are ruptured and bile effused; let remedial measures be first tried, duly persevered in, and patiently watched; but, above all, let the great power of the curative processes of nature be borne in mind.

Note by the Editor.

A case bearing a close resemblance to the one above recorded is related by Mr. Fryer, in Vol. IV. of the Transactions of this Society. No examination, however, was made of the nature and composition of the fluid. In a "*Practical Treatise on Diseases of the Liver and Biliary Passages*, 1841," by Dr. William Thomson, of Edinburgh, the author has quoted from the London Medical Journal, (Vol. VI. p. 274—1785,) a case by Dr. Skeete, "of considerable effusion of bile into the cavity of the abdomen, occurring in consequence of a fall from a tree, in a boy fourteen years of age, who survived the accident six weeks. In this case paracentesis was performed on the 24th day, and sixteen pints of yellow fluid were evacuated, containing, apparently, a very large proportion of bile. The operation was re-attempted on the 37th day, unsuccessfully. On *post-mortem* examination, bilious fluid to the amount of two or three gallons was found contained in the abdomen, particularly in one large cavity formed chiefly by the right hypochondrium, which had been greatly enlarged by the diaphragm yielding to the pressure upwards. The peritoneum surrounding the fluid was everywhere covered with coagulable lymph, bearing some resemblance to a distinct and regular cyst. In this case, in consequence of the adhesion of the liver to the stomach and neighbouring parts, the gall-bladder and biliary ducts were involved in such a state of confusion that nothing satisfactory could be ascertained with regard to the exact place at which the injury had been received; so that it must remain a doubt," observes Dr. S., "whether the bile was effused into the cavity of the abdomen, from a rupture of the gall-bladder or of the biliary ducts."

In the above case it was ascertained by dissection that the fluid principally occupied the right hypochondrium. In Mr. Barlow's case, also, the swelling was chiefly confined to the same region. This circumstance was noticed at the time the patient was in St. Bartholomew's Hospital, under the care of Mr. Lawrence, and led both that gentleman and Mr. Stanley to infer that the fluid was either circumscribed by adhesions, or, on the outer side of the peritoneal sac. G. C.

PECULIAR CASE
OF
GELATINIFORM CANCER,

IN WHICH NEARLY ALL THE ORGANS OF THE BODY CONTAINED COLLOID TUMOURS;

WITH THE APPEARANCES ON DISSECTION.

BY JOHN C. WARREN, M.D.,
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COMMUNICATED BY MARSHALL HALL, M.D., F.R.S. S. L. AND ED.

READ JUNE 25TH, 1844.

COLLOID, gelatinoma, or gelatiniform cancer, as it has been called, is stated by the distinguished authors who have described this disease, as occurring in one single mass, usually of considerable size. Dr. Walshe, in his work on cancer, says, "In the description of scirrhus, the comparative rarity of the co-existence of several tumours in the same subject has been noted; this is still more marked in the case of colloid. M. Cruveilhier states, that it is rare to observe its successive or simultaneous development in a number of organs or parts. Dr. Hodgkin expresses himself nearly in the same tone, but adds, that it does at times invade different localities in the same subject. It may co-exist with the two other species of carcinoma, in distinct organs."

In the case here described the disease was diffused through nearly all the textures of the body without presenting any one considerable mass.

This case is also remarkable in exhibiting a union of the three admitted forms of malignant disease, scirrhoma, cephaloma, and gelatinoma. I must observe, however, that my opportunities of examining the colloid form of malignant affection have been few, compared with the other two forms. Perhaps those who are more versed in its pathology may even doubt the propriety of enrolling this under the head of gelatinoma. I have stated the facts as accurately as I could, and leave the character of the disease to be decided by those who are better able to do so.

There seems to me to be an obscurity in the discrimination of the forms of malignant disease, which requires for its dissipation a great number of new observations, made by accurate and experienced pathologists.

J. B., a painter by trade, residing in Boston, not married, twenty-five years of age, applied to me in May 1840, on account of a tumour upon the right side of the neck.

In his family history there did not appear any thing peculiar: his father, being forty-eight years of age, died of inflammation of the lungs; his mother was still living, in good health; two brothers and two sisters were also living, in health; he had lost one brother by measles in early life. He himself had measles, and afterwards jaundice, when very young; his health from the time of recovery to the present has been good, with the exception of an intermittent fever at New Orleans about three years since, from which he recovered on leaving the city; he has been able to work, until within a month.

At the time of the application his personal appearance was emaciated and pallid; he complained of loss of appetite. The tumour, for which he applied, had existed for about a year and a half, and was situated on the right side of the neck, immediately above the clavicle. It was rather hard, slightly moveable, and presented, on the whole, the appearance of a scrofulous enlargement of the lymphatic glands, except that it was harder than those glands usually are when thus affected. There were also one or two other tumours upon the trunk, which had appeared within a month, and one upon the left arm, which may be described as a type of the others, situated on the anterior and middle part of the upper arm. It had a bluish white colour. The skin which covered it was perfectly natural as to colour, and was moveable on the surface of the tumour. It was somewhat elastic, about the size of a nutmeg, not painful, nor sensitive to the touch, and had, on the whole, a slight resemblance to a limited varicose tumour.

Presuming his disease to be of a scrofulous character, I recommended the internal use of the tincture of iodine, and an ointment to be applied externally containing the hydriodate of soda, four leeches to the tumour of the neck, to leave his business, and go into the country.

After the lapse of ten days he came to me again, calling himself better: the tumour in his neck was a little diminished: the continuance of the same remedies was therefore advised to him. Ten days more having expired, he came again to me, when I found that the tumour in the neck had continued to diminish, but his general health was not so good. I therefore advised him to omit the external use of the hydriodate of soda, but to continue the internal use of the tincture of iodine, and to make a fresh application of leeches to the tumour.

On the 20th of June he entered the Massachusetts General Hospital, under the care of Dr. Townsend; and, as his case was interesting, I continued to observe him carefully through the different phases of the disease which presented themselves. At this time his general health did not appear very much affected; his pulse and tongue indicated no great disturbance; the appetite was tolerable; but there was some oppression after taking food. The tumour of the neck was about the size of a hen-egg; there were also a number of tumours scattered over the surface, especially of the abdomen, generally about the size of a hazel nut, many of them, however, not being larger than small shot, irregularly rounded in form, elastic to the touch. The skin was perfectly white over them, the bluish tint appearing to emanate from the internal tumour through the transparent skin. At my request Dr. Townsend opened one of these tumours, on doing which, after the skin was cut, a delicate membrane was observed, covering a little cluster of pearl-like granulations, containing a gelatinous substance and some watery fluid. A small vein ran into the tumour, ramifying freely over the surface of the cells, and from this issued venous blood, which continued to flow for a few minutes.

The day subsequent to his admission to the hospital he began to complain of severe pain in the abdomen and back, which finally limited itself to the left iliac region and left hypochondrium, and after several days was much relieved by the application of leeches. Pain in the head also commenced, while he yet laboured under the pain of the abdomen, say ten days subsequent to the origin of the latter. It continued to advance in severity for some days, until the left eye was affected, the conjunctiva being considerably injected: by suitable applications this was relieved, and for a day or two he seemed comparatively comfortable, the pain in the head being less. The respite, however, was only for a couple of days, when the pain in the head again returned, and continued to increase in severity till it became very violent, all treatment affording only a temporary relief.

Upon the eighteenth day of this second accession, and the fifty-third of his admission to the hospital, the pulse was very variable, from 68 to 100; his appearance resembling that of a man under the influence of opium, being stupid, and roused with difficulty. These appearances were ascribed to the opiate he had taken, but without good reason, as it appeared subsequently; for, after the lapse of a fortnight, during most of the time being more or less stupid, he said that he had double vision with the right eye, there being some dilatation of the pupils, with strabismus. In a degree this was relieved previous to his discharge, which took place, at the request of his friends, on the 2nd of September, his condition not being improved. The tumours, with no variation, except a slight increase in size and modification of colour, being darker, had now increased to a number between thirty and forty, covering the abdomen and limbs.

After his return home he lingered till the 21st of September, gradually sinking, without any material change in his condition, excepting that he was delirious for two days before death.

Autopsy.—In the examination of the body, which took place eight hours after death, I was aided by the excellent pathologist Dr. J. B. S. Jackson, a number of other gentlemen being present, among whom were Drs. Townsend, Adams, of Waltham, and J. M. Warren.

External appearance.—The body was emaciated; its surface studded with subcutaneous tumours, generally about the size of a hazel nut, of a bluish colour, and of slight elasticity to the touch.

Tumours.—Several were removed and opened; they were composed of small granulations, constituted by sacs containing a substance which appeared at first view to be wholly gelatinous, but which, on being divided, discharged a small quantity of viscid fluid. The colour was a mixed grey and red; they were slightly transparent; in consistence they were friable: most of them were connected with small veins, and had a vascular tissue upon their outside. Many of the lymphatic glands were indurated, especially the inguinal, which exhibited very large absorbent vessels running in and out of them. The tumour of the neck had not varied in size, and consisted of a yellowish white, moderately firm, elastic substance; in colour, resembling the deposit sometimes seen in scrofulous glands, but in consistence, different from that of these glands, in having a greater degree of firmness.

The thyroid gland was enlarged, hardened, and exhibited small gelatiniform bodies.

Head.—The cranium being cut into, displayed a number of the minute, semi-transparent, gelatinous tumours in the diploë of the frontal and occipital regions. Near the superior angle of the occipital bone was a spot, about half an inch in extent, which reached quite through, so as to adhere to the dura mater; also another, which did not extend through, existed upon the temporal bone. The excavation in the bones was filled by small pearl-like granulations, of a gelatinous consistence.

The membranes investing the brain were dry and opaque: the brain itself appeared dry; its vessels, particularly of the cineritious part, were dark-coloured. In the ventricles were from 4 to 5 ounces of serum; the plexus choroïdes was pale, and without tumours.

Thorax.—The tumours were found in the muscles, both internal and external to them; they also occupied the ribs, to such an extent as to render some of them quite soft. A considerable number existed in the mediastinum, the pleura itself being quite healthy.

The heart, externally, was covered with gelatiniform bodies, generally about half the size of a pea; some were larger. These tubercles were most abundant in the course of the principal arteries and veins. The muscular substance of the auricles and ventricles presented a considerable number of the gelatinous formations. In the cavity of the left auricle were found two gelatiniform bodies, of a globular form, adhering to the internal parietes of the auricle. These, examined by the microscope, were seen to be composed of minute granules, barely visible by a glass magnifying thirty times, but by the aid of the most powerful simple lens, these granules appeared to contain others. The coagulum found entangled in the mitral valves had somewhat the same appearances under the same magnifying powers.

The lungs appeared, at the time of the autopsy, to be healthy, but could not then be minutely examined. On a subsequent examination, a small gelatiniform tumour was noticed on the surface of the left lung, and on cutting into these organs, a number of similar bodies were found sparingly scattered throughout their texture; in other respects, these organs were somewhat hyperæmied, but for the rest in a perfectly healthy state. The bronchial glands were hardened, and exhibited the same appearance as the tumour of the neck.

Abdómen.—The absorbent vessels upon the surface of the abdominal muscles contained an opaque substance, which struck us at the time to be of a cerebriform character; but whether it was really encephaloid matter, or the opaque form of the gelatinous substance, which existed in other parts of the body, could not be certainly ascertained. The omentum was free of fat, and of tumours. The mesentery was studded with the tumours, and the mesenteric glands were enlarged: one just above the right inguinal canal was as large as an English walnut: the whole of them containing the same whitish opaque substance as the tumour of the neck. There were a number of these tumours about the pyloric orifice of the stomach; but the texture of the stomach itself was healthy, and had no gelatiniform appearances.

The liver was greatly diseased, being filled with the tubercles, which projected above the surface. These tubercles, when cut into, appeared of a yellowish white colour, and granulated texture; they were destitute of the transparency which characterized the tumours throughout the body, and closely resembled the appearances of scirrhoma of the liver depicted by Carswell. The substance of the liver itself was dark.

The pancreas was much enlarged and hardened, of a rounded oblong form: there were some of the tumours on its surface. The spleen was not altered.

Kidneys.—These organs had in their interior a number of the gelatiniform tumours, particularly the right kidney. There were many of them in regular masses, contained in the cellular substance surrounding the kidneys. The supra-renal capsules were enlarged and hardened.

Pelvic organs.—The bladder was free from disease.

The testes were enlarged, and in each of them two or three indurated, opaque, whitish tumours might be found.

The thoracic duct was larger than natural at the lower part, and was compressed above by a number of diseased glands.

The arteries and veins were thin and pale, and exhibited no appearance of redness in their internal coat.

The blood was small in quantity, thin, watery, and of a dark colour: no gelatiniform bodies were detected in it.

The appearance of the muscles covering the thoracic cavity has been already described. Many of the muscles, in other situations, presented on their surface and in their substance, a great number of gelatiniform bodies, varying in size from that of a pea to that of granules not distinctly visible without the aid of a microscope. Some of the muscles seemed to be almost composed of these bodies, particularly the gracilis muscle of the thigh and the rectus muscle of the abdomen, which were carefully dissected, and a portion of them preserved.

Remarks.—The appearances in this case, as already stated, were peculiar, and not exactly accordant with those which I have seen described in any case that I am acquainted with. The texture of the large tumour of the neck, and that of various lymphatic and mesenteric glands, considerably resembled the common scrofulous tubercles of these glands.

The lungs, which, according to M. Louis, are always found to contain tubercles of a scrofulous character, when these exist in any part of the body, formed a remarkable exception in this peculiar disease, to the condition of nearly all the other organs.

The appearances in the liver were such as are seen connected with scirrhoma; but the vast number of tumours found in most of the organs of the body were of quite a different description. They bore a decided resemblance, in texture, to what has been described by Cruveilhier, Velpeau, and other distinguished pathologists, under the name of Gelatiniform Cancer. They differ, so far as I know, from all the descriptions which have been given of this latter affection, in being small and dispersed through all the organs of the body; whereas this disease is described, by the best pathologists, to be, in most cases, concentrated in one continuous mass. Whether these considerations would lead them to rank this disease as a variety of gelatiniform cancer, or as one of a different and anomalous character, I must leave to them to decide.

It was very curious to observe these tumours in all the various degrees of development, from the point of their deposition and formation to their attainment of a considerable magnitude. Whatever was their size, the same transparent granular appearance was always visible, there being no difference except in the size of the transparent granules. The opaque whitish substance was confined altogether to the system of lymphatic glands.

Among so many varieties in form and stage of this affection, I was not without the hope of discovering some morbid changes, which might have been supposed to have preceded the formation of the gelatiniform substance. But no anterior preliminary change in the state of the cellular, muscular, vascular, or any other texture could be discovered, either by the eye, or the microscope.

Specimens of the disease from various parts of the body were preserved, and subjected to many subsequent examinations. Contrary to the opinion expressed by some authors in regard to gelatiniform tumours, all these tumours soon lost their transparency on immersion in alcohol, and presented the same yellowish white appearance as the diseased lymphatic glands.

This case goes to support the opinion of eminent pathologists, namely, of Carswell, Laennec, Otto, Cruveilhier, Müller, and of Walshe, (whose valuable work on Cancer has been recently republished in this country under the direction of Dr. J. M. Warren,) of the identity of the three forms of malignant disease, Scirrhoma, Cephaloma, and Gelatinoma. The scirrhomatous appearance was seen in the liver, and in some of the lymphatic glands; the cephalomatous in some of the lymphatic vessels; and the gelatinomatous in almost every part of the body.

In a fatal case of gelatinoma, which I have met with since this case occurred, two of the appearances indicated above were distinctly combined, namely, extensive gelatiniform disease in the large intestine joined to a scirrhomatous state of the neighbouring mesaraic glands.

AN ACCOUNT
OF THE
EXAMINATION OF A CYST CONTAINING SEMINAL FLUID.

BY JAMES PAGET, F.R.C.S.,
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READ JUNE 25TH, 1844.

THE novel and interesting fact of the presence of spermatozoa in the fluids of certain hydroceles, which was communicated to the Society last year by Mr. Liston and Mr. Lloyd, has not yet, I believe, been illustrated by examinations after death, and the conditions in which so strange a thing occurs have been hitherto only guessed at. I therefore beg to present to the Society an account of some observations which I have recently made, and which seem to me to throw some light upon the subject.

A middle-aged man was admitted into St. Bartholomew's Hospital, under Mr. Stanley, six months ago, with what was regarded a common hydrocele of the tunica vaginalis on the left side. This was tapped, and several ounces of a serous fluid, of the kind usually found in such hydroceles, were drawn off. The fluid was not particularly examined; the hydrocele was not injected; and, soon after, the man left the hospital. He returned with the hydrocele again full; and, besides, with very extensive abscesses in the perineum and fistulous openings into the urethra and bladder. With these he died, extremely emaciated, on Wednesday, June 5th; and the parts connected with the hydrocele were removed for examination.

The sac which had been tapped, and which, in its external appearance, even after its removal from the body, had all the characters of a common hydrocele, was found to be completely separate, and its cavity distinct from that of the tunica vaginalis. It was situated just above the testicle, and in front of the spermatic cord; it was of an elongated oval form, four inches in length, and held about six ounces of a bright light-yellow fluid, containing a small quantity of albumen, but no trace of either spermatozoa or any other organic particles. Its walls were very thin, and loosely connected with the adjacent parts; they were composed of well-organized delicate fibro-cellular tissue, and their internal surface was smooth, but not lined by any epithelium. The sac was closed on every side: it was separated from the tunica vaginalis by tissue like that of false membrane, layers of which formed several incomplete cysts, or spaces, containing a serous fluid like that in the sac itself.

The tunica vaginalis appeared healthy; its cavity contained about three drachms of fluid, presenting the same external appearance as that in the sac, but containing numerous granules, together with some pale, round, granular corpuscles, very like the pale corpuscles of the blood, and, in a few instances, united by their edges into small groups like films of *buffy coat.* But there was in this fluid no more trace than in the others, of either spermatozoa, or any other constituent of the semen.

By the upper part of the epididymis, on its inner side, and attached to its surface, where on each side the tunica vaginalis is reflected from it, there was a globular cyst, about two-thirds of an inch in diameter, completely distinct from those already described, though almost surrounded by them. Its walls were thin, but opaque white; they were composed of fibro-cellular tissue, with delicate pale filaments, intricately interwoven, and not so fully organized as that of the large sac. From its polished inner surface I scraped scales of an exceedingly delicate tessellated epithelium, composed of very pale, elongated, oval, and angular cells, united by their obscure edges, and having dark large nuclei of the same shape as themselves: they were much like the epithelium-cells of the tunica vaginalis itself, but even smaller than those of the blood-vessels. The contents of the cyst were two or three drachms of an opaque whitish fluid, in which there were numerous spermatozoa, dead and small, but well formed, and still more numerous granules, and large round granular spermatic globules. It contained no albumen coagulable by heat.

This cyst was closed on every side, and loosely connected to the adjacent parts, so that without cutting, and with very little force, it could be easily separated from them. The part of the surface of the epididymis to which it was attached was left, after its separation, perfectly smooth, and without the least appearance of a breach in the investing membrane, beneath which the fine convolutions of the seminal duct were seen, uninjured and undisturbed. It was as evident as it could be that the cavity of the cyst was completely isolated from every part of the seminal tubes.

If, with the aid of these observations, we endeavour to find an explanation of the occurrence of spermatozoa in the fluid of cysts connected with the testicle, we may suppose either that the fluid part of the semen has permeated from the seminal tubes into the cysts, and been further organized in them; or, that the cyst itself secretes a fluid in which the organic structures of the semen may be developed. Such a permeation is hardly possible; for the fluid would have to pass not only through the vascular wall of the tubes, but through two or three more layers of vascular tissue, by all of which it would be absorbed rather than transmitted. The most probable explanation of these cases, therefore, seems to be, that certain cysts, seated near the organ which naturally secretes the materials for semen, may possess a power of secreting a similar fluid. And this explanation is in some measure supported by the analogy of those cysts which are found in the ovaries, and more rarely in other parts of the body, especially beneath hairy parts of the skin, and in which the ordinary products of the skin, such as epidermis, sebaceous matter, hair, &c., are formed on the genuine cutaneous tissue* of their internal surface.

The opaque white fluid found in cysts by the testicles should, probably, be regarded, not as an ordinary serous or watery fluid containing spermatozoa, but as semen more or less perfectly formed. Such fluid, even when spermatozoa are not in it, presents the peculiar general appearance of diluted semen, and, unlike the serous fluids, contains little or no albumen; and, probably, though there may be no perfect spermatozoa, it may contain them imperfectly developed, or some of the other organic structures of the semen. In a body examined last winter, I found two cysts, one on the exterior and upper part of each epididymis, exactly like that just described as containing the spermatozoa, except that they were rather larger. Both of them were isolated and closed on every side; and they contained a thin, opaque-white fluid, in which, together with numerous glistening granules, I found several pale, round, granular corpuscles. In a few instances, several of these corpuscles were collected in small clusters, together with short and slender pale filaments, tapering at one end, exactly like the *tails* of spermatozoa. A few filaments of the same kind were scattered loosely in the fluid, and I found two which were slightly enlarged at one end, approaching more nearly to the form of complete

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See Kohlrausch, in Müller's Archiv. 1843, Heft iv. p. 365: whose observations I have verified in several specimens of ovarian cysts.

spermatozoa. I believe that all these filaments were ill-formed spermatozoa; and, if they were, this case is another example of cysts near the epididymis secreting seminal fluid, and affords evidence that such cysts, in different cases, possess the power of secreting the fluid in various degrees of perfection.

The existence of a large sac on the spermatic cord, unconnected with the tunica vaginalis, yet containing a fluid like that of common hydrocele (as in the case above related), suggests the possibility, that in the instances in which common hydroceles have been supposed to contain spermatozoa, the fluid has been drawn from a sac of this kind, and not from the cavity of the tunica vaginalis. It is, of course, not impossible that the tunica vaginalis should secrete a seminal fluid; but I think further evidence is necessary to prove that it ever does; for none of these cases have been examined by dissection, and the diagnosis during life is very uncertain. In the case which I have described, the fluid was supposed, even by our president, to be in the tunica vaginalis; and Mr. Liston speaks of the diagnosis between common hydroceles and large encysted hydroceles, as "frequently exceedingly difficult, if not impossible."*

To explain the occurrence of spermatozoa in the yellow albuminous fluids drawn from such cysts (or, possibly, from the tunica vaginalis), we may suppose that a part of the wall of the cyst secretes the materials for semen, while the rest secretes serum; a supposition which is supported by the analogy of the ovarian and similar cysts already mentioned. In these it is commonly only a part of their inner wall which has the structure, or forms the ordinary products, of skin; the rest has a simple structure, and produces, if anything, a simple serous fluid, and, as in these cysts, I have found reason to believe that the skin, after existing and secreting for a certain time, may degenerate, cast off its hair and epidermis, and lose all its peculiar structures; so, probably, that which was once a seminal cyst, may cease to secrete semen, and produce only a serous fluid.

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* Medico-Chirurgical Transactions, vol. xxvi. p. 218.

SOME
STATISTICAL RECORDS
OF THE
PROGRESS OF THE
ASIATIC CHOLERA
OVER THE GLOBE.

By S. WILLIAM J. MERRIMAN, M.D.,

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READ JUNE 25TH, 1844.

Having been appointed to deliver the Thurston Oration last year at Gonville and Caius College, Cambridge, and the subject of "Cholera" having been selected for me, I examined minutely the history of this dreadful scourge, and soon became convinced that although much had been published relative to its progress over the globe, yet that a great mass of information remained still in obscurity; that although there had been ample opportunities of procuring correct accounts, yet that very few had been published. The various Government Reports and other publications of the Indian practitioners gave a very full statement of the ravages of the disease in India and of its advance towards

Europe until the year 1824, when it became dormant for six years, eventually commencing a fresh progress from Astrachan in 1830. My investigations have enabled me partly to give the history of the disease during this dormant period, and also that of much greater importance, viz. an account of its visit to our own Islands, and to other countries subsequent to February 1832, neither of which are included, or, if at all, are very slightly touched upon, in the published histories. Of the subsequent progress, however, I have found but few authentic documents, so that the account must necessarily remain rather meagre.

The account of the progress of the cholera between the years 1824 and 1830 is drawn principally from the Edinburgh Medical Journal, which contains in a Supplemental volume an analysis of several most important reports on the cholera by medical men, appointed by the Russian and other governments to study the disease in those spots where it prevailed: from these reports I learn that the disease remained in the parts of Persia and the Russian territories which border on the Caspian Sea, during the whole period in which it made no progress.

Before commencing my historical sketch I may, perhaps, be allowed to allude to a curious coincidence, viz. that the "Cholera" occupied fourteen years in its passage from India to England, and that the "*Black Death*," which desolated Europe and Asia in the middle of the fourteenth century, required fifteen years to spread from China, where it first arose, to Europe.* This may be merely an accidental coincidence, but it appears to be worth recording.

It is a question of considerable doubt, whether the cholera was altogether a new disease in 1817, or at that period commenced the progress which I am about to relate.

Rising, in May 1817, in one of the towns near to Calcutta, it ravaged that city first, and then appeared at Jessore, according to the Bengal Government Report, and did not commence in the latter place, as is stated in our ordinary accounts. It spread up the Ganges towards the north, also towards the south and south-west, reaching Bombay in September 1818, and Madras in October of the same year; it continually travelled onwards, eventually reaching the Island of Ceylon, and was thence transported, as is usually believed, to the Mauritius. It spread eastwards through Arracan, Malacca, Sumatra, Penang, and Borneo, where it attacked Singapore in October 1819. In 1820, it advanced through Tonquin and Cochin China, reaching China in December of that year. Here it existed for several years, committing very great ravages.†

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* See "Hecker's Epidemics of the Middle Ages," published by the Sydenham Society.

† In the April number of the Edinburgh Medical and Surgical Journal for 1844, are some researches upon the Cholera in China; it is stated "to have reached Ningpo in May 1820, where 2,000 died; it appeared again the two following years with redoubled violence, so that during the summers of 1820-21-22, 10,000 persons are supposed to have been carried off in the city and

It re-appeared in Java in 1822, and advanced to Ternat, Celebes, and Banda; in 1823 it reached Amboyna, and afterwards Timor; also the Philippine and Spice Islands; it desolated many cities of Mongolia and reached Siberia in 1827, where it was checked by a strong north wind in February: elsewhere I have found it reported that Siberia was attacked as early as 1823.

During this period it had also advanced to the west, appearing at Muscat on the Persian Gulf in July 1821. It ascended the Gulf to Bassorah, and Bunder Abassi or Gombroon, the Great Persian seaport, at the northern extremity of the Gulph. It crossed Persia, (leaving, however, Ispahan, which was closed rigorously against all visitors, and is a particularly healthy spot,) and thus gained the borders of the Caspian Sea, where it attacked Astrachan, but spread no further in that direction. It spread westwards to Erzeroom, near the Black Sea, and up the Tigris and Euphrates into Syria, where we last hear of it at Tiberias in 1824.

At this point there is a cessation of reports, the cholera apparently not extending rapidly, but confining itself to the Persian towns in the neighbourhood of the Caspian Sea, with which there is little intercourse; a close investigation, however, of the various reports have shown that during the

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department of Ningpo." It broke out again in 1831, but not so violently, and in 1841 appeared afresh in the city of Chinhai.

The account states that it is not an uncommon disease in China, and that the Chinese are very much frightened at it.

years 1828-29, it prevailed at Reschd and the neighbouring country on the south-west coast, and at Teheran near the south coast; that at Tabreez or Tauris on the ancient river Araxes to the west of the Caspian, it prevailed in 1823, and again in 1829 and 1830; and at Tiflis, the capital of Georgia, in August and September 1830.

In 1829, it suddenly appeared at Orenburg, a Russian town 400 miles north of the Caspian Sea, and it is remarked that the authorities were quite unable to trace either infection or contagion. The first case occurred August 26th, the second a week later, the third on September 8th; it now became general, and by November 20th, 1,100 cases had occurred, of which 260 died. It lasted during the winter, ceasing finally on February 23rd, 1830.

The cholera appeared for the second time at Astrachan on July 31, 1830, with intense malignity, destroying in twenty-seven days, 4,043 persons in the town, and 21,268 in the province; it now rapidly ascended the Volga, reaching Moscow on September 26th, where, however, it did not become prevalent till the 31st. The disease continued in Moscow till February 1831, and destroyed 4,690 persons out of 8,576 attacked. It did not reach Riga till the middle of May, nor St. Petersburgh till June 26th, having been apparently retarded by the intense cold of a Russian winter.

From Astrachan it spread likewise to the northern coast of the Black Sea, where it prevailed in August 1830, and ran up the rivers into the central parts of Russia. It reached the frontiers of Poland in December or in January 1831, and spread over that country in an unusual manner, as if it had followed the movements of the Russian army, at that very time engaged in subjugating the people: in April it appeared at Warsaw, and on May 29, at Dantzig, at the mouth of the Vistula. It was at Lemberg, in Austrian Poland, and in Cracow, in June; in Gallicia it destroyed between 34 and 35,000 persons, and attacked Hungary, where it carried off about 95,000. Gaining thus the banks of the Danube, it appeared in Vienna in August or September; Berlin suffered in August, as did likewise Hamburg, whence it is believed that the disease was imported into England; of which more presently. But first let me mention its ravaging Constantinople and Smyrna, at which place it first appeared, September 25th, 1831. The account of this attack in the Medical Gazette, vol. ix. page 756, is remarkable, and well worthy of notice. In Cairo, the disease appeared August 15th, 1831, brought by a caravan from Mecca, 5,500 persons having died on the road; the disease disappeared on September 13th, having carried off, it is said, 10,400 Mahomedans, besides Jews and Christians, who were never numbered.

I proceed now to give an account of the disease in Great Britain, and regret much that I am able to do so little towards rendering the history complete, owing to the difficulty of obtaining authentic documents. The newspapers published indeed frequent reports of the ravages of cholera in our island, but without regularity, so that their value is greatly diminished, in consequence of the numerous omissions; by the kindness, however, of Sir William Pym, I have obtained from the Privy Council Office, a copy* of the summary of the daily returns sent to the Central Board of Health from 422 places in Great Britain, which I have analysed according to the divisions of the kingdom, and from which I have extracted those returns which appear most valuable, as showing in how many of the principal towns the disease prevailed, and to what extent: also in what localities it attacked the greatest numbers, or proved most fatal. I regret much that I have been unable hitherto to obtain a similar report from Ireland, for the disease prevailed there to a great extent; I have only the aggregate numbers of persons attacked and deceased up to a certain period, but this I append hereafter in its proper place.

The opinion of the members of the Central Board, and also of many other practitioners, was, that the cholera was propagated by infection or contagion, and was not epidemic; and so many instances have been mentioned where this manner of propagation is highly probable, that in our present state of observation, it can hardly be doubted that such was often, perhaps usually, the cause of its spreading from town to town; nevertheless, it appears also incontrovertible, that the number of victims in each place depended very materially upon the local peculiarities of dirt and damp, want of ventilation, irregular and depraved habits of living, and, possibly, of the weather; it is, therefore, much to be regretted, that the Board did not draw up a classified report of the various peculiarities in each town which may be supposed to have favoured or hindered the spread of the disease. It would have been a laborious task, but one eminently useful to succeeding generations, if they had ascertained the proportion which the cases occurring in the filthy, undrained quarters inhabited by the poor, bore to those in the open, freely-ventilated habitations of the higher classes. An inspection of the lists I append to this paper shows the great prevalence of the disease at seaports, and places on the borders of canals and rivers, where inland navigation is carried on: doubtless we have here all the requisites for the conveyance of contagion, but the dampness, the dirt and irregular living of the inhabitants must have assisted this contagion, if contagion there was, distinguished from a general aerial influence, and we have now no means of ascertaining the full value of each.

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* I believe that there are only three copies of this Report in existence, one at the Privy Council Office, one in the Library at Buckingham Palace, and that with which I have been favoured.

Numerous other places are in the mining and manufacturing districts. Here, again, want of ventilation, and irregular living, prevail, and must have exerted their influence.

There are, besides, many villages and small towns not affected (as would appear from a superficial investigation) by any of these peculiarities; and, accordingly, we find but few cases in them. Still this varies very much, and I am quite unable to suggest a reason for this difference; how very valuable, therefore, would a report, drawn up so as to show the injurious effects of some, and the beneficial effects of other circumstances (in each case affecting a larger or smaller extent of territory), be to future investigations into the study of the means of promoting the public health.

With reference to this subject, let me make a few observations upon some places in this list—and first of Lancaster. I have heard from medical men, intimately acquainted with this town, that not one case of true Asiatic cholera occurred here, although the report mentions thirty-five, yet all agree that the numbers set down as occurring at the "asylum" are correct. Now, the asylum is built in a hollow, at a considerably higher level than the town, in a spot which was formerly a marsh, frequented by snipes, and even now is often covered by fogs: such a locality appears very favourable to the spread of cholera. Again, at Whitehaven, $4\frac{5}{8}$ per cent. of the inhabitants were attacked: this large proportion is accounted for by the circumstance, that Whitehaven is usually unhealthy, as I am informed, epidemics of all kinds prevailing to a great extent in that town, under ordinary circumstances. I am not acquainted with the town, and cannot assign any particular cause for this unhealthiness. The cholera affected the following places, in the manufacturing districts, and very near to each other, so differently, that I am induced to call the attention of the Society to the circumstance. At Bilston, in Staffordshire, there were 2,250 cases, being a per centage of $15\frac{1}{2}$ on the population; at Sedgeley, 1,463 cases, or $7\frac{1}{8}$ per cent.; at Tipton, 1,018, or $6\frac{3}{4}$; at Dudley, in Worcestershire, 1,228, or $5\frac{3}{8}$; at Oldbury, in a detached part of Shropshire, 198 cases, or $4\frac{3}{8}$; at Walsall, 378, or $2\frac{1}{2}$; at Wednesbury, 175, or $2\frac{1}{12}$; at Darlaston, 127, or $1\frac{15}{16}$; at West Bromwich, 279, or $1\frac{13}{16}$; at Birmingham, 31, or $\frac{1}{50}$; and at Hales Owen, 1 case only out of a population of 11,839. The two extremes are thus 2,250 cases out of 14,492 inhabitants, and 1 case only out of 11,839; a striking difference, and which can only be explained, I confidently expect, by the peculiarity of situation, or by there being a difference in the character of the inhabitants.

The increased mortality in Scotland may, I believe, be attributed to the great misery of the poorer classes in the large towns, a circumstance which would much increase the malignity of the disease.

The disease commenced and ended its ravages on the following dates:—

England—Sunderland,	Oct. 26, 1831;	and Knaresborough,	Dec. 31, 1832.
Scotland—Haddington,	Dec. 25, 1831;	and Aberdeen,	Dec. 31, 1832.
Wales—Flint,	May 7, 1832;	and Abergavenny,	Dec. 16, 1832.

The longest duration of the disease at one place was in

England,	at Newcastle-upon-Tyne, viz.,	of 351 days.
Scotland,	at Leith,	of 327 days.
Wales,	at Merthyr Tydfil	of 89 days.

The lists which are appended, show more clearly the exact duration at these and other places.

The following Table shows the commencement and termination of the disease in each of the four hundred and twenty-two places whence returns were received, arranged according to the months.

	BEGINNING.				ENDING.			
	England.	Scotland.	Wales.	Isle of Man.	England.	Scotland.	Wales.	Isle of Man.
1831.								
October	1							
November	1							
December	6	1						
1832.								
January	1	9						
February	5?	10				6		
March	4	20			5?	10		
April	9	12			5	5		
May	12	6	2		4	9		
June	38	6	3	1	11	5	2	
July	58	11	2		22	8	4	
August	64	17	3		27	6	1	
September	50	15	1		79	9	2	1
October	23	17	5		71	33	3	
November	4	3	1		39	23	3	
December	1				14	13	2	
	277	127	17	1	277	127	17	1

N.B. The ? in the above Table denotes a possible inaccuracy, as I do not know where to class the place named Salton Heard Manston, but assume it to be English. There are also two errors arising from the fault of the original transcriber, who makes the cholera begin at Hurlet, in Renfrew, on October 27th, 1832, and terminate on June 20th, 1832, and states that the disease disappeared from Stoke Mandeville on August 26th, being forty-three days since the 15th of the same month.

The following are the aggregates which I make for the various divisions of the kingdom:—

	Cases.	Deaths.	Recoveries.	Population of places affected.
England	49,594	14,807	33,790	2,753,958
Scotland	20,202	10,650	10,549	937,146
Wales	1,436	498	938	101,603
Isle of Man	276	146	130	6,054
	71,508	26,101	45,407	3,798,761
London and its vicinity	11,020	5,275	5,745	1,424,896
	82,528	31,376	51,152	5,223,657
Ireland up to March 1, 1833	54,552	21,171	33,381	
	137,080	52,547	84,533	

Being a mortality of 38¼ per cent. on the cases.

The proportion of cases in Great Britain, to the population, is $1\frac{19}{32}$ per cent.

The proportion of deaths in Great Britain, to the population, is $\frac{19}{32}$ per cent.

according to the copy of the returns; but according to the calculations which I have instituted, I find the mortality to be—

England*	0·5377	or rather more than ½ per cent.
Scotland	1·136	or rather more than 1 per cent., and double that of England.
Wales	0·49	not quite ½ per cent.
Isle of Man	2·411	called $2\frac{7}{16}$ in returns.

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* Exclusive of London.

And if compared with the number of cases, we have the mortality in

England*	29·856	per cent.
Scotland	52·717	
Wales	34·678	
Isle of Man	52·898	
Ireland	38·808	

I now proceed to give extracts from the returns, and here wish to state the rule which has guided me in my selection.

I have extracted *all* those places where the number of persons affected amounted to 5 or more per cent. upon the population, these localities being at once marked as favourable to the spread of the disease. I have afterwards merely extracted those places which, from their size and importance, or some other peculiarity, are worthy of notice, and serve to show how extensively the disease was propagated over the whole kingdom.

The arrangement is according to the numerical value of the per centage of cases.

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* Exclusive of London.

ENGLAND.

N.B.—The * denotes that the place so marked was attacked more than once by Cholera, the extreme dates and aggregate duration only being expressed.

Name of Place affected.	Date of First Case.	Date of Last Case.	Days' Duration	Number of Cases.	Number of Deaths.	Number of Recoveries.	Proportion of Deaths to Cases per Cent.	Population.	Proportion of Cases to Population per Cent.	Proportion of Deaths to Population per Cent.
Bamburgh, Northumberland	Nov. 1, 1832	Dec. 20, 1832	50	121	23	98	19½	417	28½	5¾
Goole, Yorkshire	April 5	June 2	59	96	36	60	38	450	21½	8½
Blackthorne, Oxfordshire	June 5	July 30	56	81	22	59	27	393	20⅛	5¼
Bilston, Staffordshire	Aug. 4	Sept. 29	57	2,250	693	1,557	31	14,492	15½	4⅞
Paulton, Somerset	Sept. 28	Nov. 6	40	273	66	207	24	1,784	15¼	3½
Hartlepool, Durham	Sept. 13	Sept. 21	9	182	54	128	30	1,330	14	4
Hetton and Houghton le Spring	Dec. 1, 1831	March 3	94	488	97	391	20	3,914	12½	2½
Barming, Kent	Aug. 31, 1832	Oct. 10	41	70	13	57	17½	565	12⅛	2¼
Chorlton-on-Medlock, Lancashire	July 13	Oct. 11	61	76	32	44	43	624	12	5
Paul, Cornwall	July 27	Dec. 7	134	466	81	385	17½	4,191	11	2
Denver, Norfolk	July 1	July 23	24	88	27	61	28½	850	10⅜	3⅜
Stoke Mandeville, Bucks	Aug. 15	Aug. 26 Sept. 26?	43	40	10	30	25	461	9½	2⅜
Droitwich, Worcester	July 24	Sept. 10	49	228	63	165	27½	2,487	9	2⅝
Newcastle-upon-Tyne	Nov. 27, 1831	Nov. 12	351	3,487	801	2,686	38	42,760	8¼	1 15/16
Swanscombe, Greenhithe, & Dartford	May 24, 1832	June 5	16	116	30	86	27	1,414	8¼	2⅛
Whittlesea, Cambridgeshire	May 29	Sept. 10	104	461	97	364	22	6,019	7⅞	1⅝
Blythe and Cowpen, York	Aug. 24	Nov. 1	70	142	42	100	30	1,805	7¾	2⅙
*Jarrow and Hebburn, Durham	Feb. 16	Sept. 24	76	263	70	193	27	3,530	7¼	2

Basford, Nottingham †	July 9	Oct. 19	103	28	8	20	39	379	7⅝	2
Dartmouth	Aug. 4	Nov. 12	100	322	49	273	15	4,485	7⅙	1⅒
Sedgeley, Staffordshire	Aug. 9	Oct. 16	69	1,463	231	1,232	15½	20,577	7⅛	1⅒
Farley, Wiltshire	Oct. 23	Oct. 28	6	12	5	7	41	174	7	3
Bicester, Oxon	June 7	July 27	51	196	64	132	33	2,868	7	2⅜
Cawood, Yorkshire	June 5	July 9	35	77	15	62	20	1,173	6⅞	1⅜
Tipton, Staffordshire	June 24	Oct. 7	106	1,018	281	737	27½	14,951	6¾	1⅞
St. Thomas, near Exeter	July 31	Nov. 8	101	276	39	237	27½	4,203	6½	⅞
Merton, Oxon	July 1	Aug. 1	32	10	4	6	40	163	6½	2¾
Cuxham, Oxon	June 4	June 30	27	13	3	10	25	207	6½	1½
Padstow, Cornwall	Aug. 8	Sept. 13	37	114	23	91	20	1,822	6⅓	1¼
Fenstanton, Hunts	July 4	Aug. 1	29	60	21	39	35	968	6	2⅓
Hampall, Yorkshire	June 17	Aug. 1	46	9	5	4	55	140	6	3⅓
Plympton Maurice, Devon	Aug. 25	Sept. 13	20	49	19	30	38	805	6	2⅜
Shilton and Anstey, Warwick	July 17	Aug. 7	32	23	9	14	40	396	6	2¼
Plymouth	June 15	Sept. 24	102	1,805	702	1,103	39	31,080	5 13/16	2¼
The Grove, near Wantage	Oct. 1	Oct. 10	10	29	9	20	30	520	5¾	1¾
Hutton Rudby	Oct. 3	Oct. 30	28	47	22	25	42½	919	5½	2½
East Rudham, Norfolk	June 30	July 24	25	51	5	46	10	950	5½	½
Northwick, Cheshire	May 27	June 17	22	84	30	54	35	1,490	5½	2
*Dudley, Worcestershire	March 31	Dec. 3	157	1,228	277	951	22½	23,043	5⅜	1⅕
Kingsbridge and Dodbrook	Aug. 16	Sept. 17	33	136	30	106	22½	2,624	5¼	1⅛
Aylesbury, Bucks	June 17	July 30	44	259	60	199	28	4,907	5¼	1¼
Workington	July 15	Sept. 29	77	333	119	214	27½	6,439	5⅙	1⅞
Cawston, Norfolk	May 18	June 29	43	57	17	40	32	1,110	5⅛	1½
Piddington, Oxon	June 25	Aug. 5	42	20	6	14	30	422	5	1½
Bulwell, Nottingham	Aug. 30	Sept. 18	20	106	26	80	25	2,105	5	1¼
*Whitehaven, Cumberland	July 1	Nov. 11	34	835	244	591	29	18,000	4⅝	1⅓

† In Lewis's Topographical Dictionary, the population of this parish is set down as 6,235.

Name of Place affected.	Date of First Case.	Date of Last Case.	Days' Duration	Number of Cases.	Number of Deaths.	Number of Recoveries.	Proportion of Deaths to Cases per Cent.	Population.	Proportion of Cases to Population per Cent.	Proportion of Deaths to Population per Cent.
Rotherham, York	Aug. 13	Nov. 20	100	159	34	125	$20\frac{1}{4}$	3,548	$4\frac{1}{2}$	$\frac{15}{16}$
Oldbury, Salop	Aug. 15	Oct. 8	55	198	37	161	$17\frac{1}{2}$	4,482	$4\frac{3}{8}$	$\frac{13}{16}$
Exeter	July 19	Sept. 4	75	1,136	347	789	$30\frac{1}{2}$	28,201	4	$1\frac{3}{16}$
*Stockton-upon-Tees	Feb. 5	Sept. 22	79	304	126	178	$41\frac{1}{2}$	7,991	$3\frac{13}{16}$	$1\frac{5}{8}$
Newcastle-under-Lyne . . .	Aug. 7	Oct. 23	78	284	60	224	$21\frac{1}{2}$	8,192	$3\frac{7}{16}$	$\frac{3}{4}$
Gainsborough	June 7	Aug. 5	60	223	41	182	$18\frac{1}{2}$	6,658	$3\frac{3}{8}$	$\frac{5}{8}$
Plympton St. Mary, Devon . .	July 28	Oct. 5	70	74	30	44	45	2,153	$3\frac{1}{2}$	$1\frac{3}{8}$
Sunderland	Oct. 26, 1831	April 20	177	554	215	339	38	17,060	$3\frac{3}{16}$	$1\frac{3}{16}$
Brixham, Devon	Sept. 4, 1832	Nov. 6	64	154	31	123	20	5,015	$3\frac{1}{12}$	$\frac{5}{8}$
Gloucester	July 11	Sept. 22	74	366	123	243	32	11,933	$3\frac{1}{12}$	$1\frac{1}{30}$
Coventry	Aug. 20	Nov. 18	91	41	18	23	46	27,070	$3\frac{1}{16}$	$\frac{1}{16}$
Liverpool	May 17	Sept. 13	119	4,977	1,523	3,454	$30\frac{1}{2}$	165,175	$3\frac{1}{75}$	$\frac{29}{32}$
East Stonehouse, by Plymouth . .	July 2	Sept. 20	71	285	133	152	47	9,571	3	$1\frac{3}{8}$
Tweedmouth, Durham . . .	Oct. 10	Nov. 30	52	138	72	66	52	4,673	3	$1\frac{1}{2}$
Ashburton	Aug. 14	Sept. 29	46	118	44	74	$48\frac{1}{4}$	4,165	$2\frac{7}{8}$	$1\frac{1}{16}$
Hull	April 14	Nov. 2	193	820	300	520	$36\frac{1}{2}$	28,591	$2\frac{7}{8}$	$1\frac{1}{16}$
Gateshead	Dec. 26, 1831	March 5	71	407	148	259	$36\frac{1}{2}$	15,177	$2\frac{3}{4}$	$\frac{15}{16}$
Warrington, Lancashire . .	June 24, 1832	Sept. 10	79	420	168	252	40	16,018	$2\frac{5}{8}$	$1\frac{1}{20}$
Walsall, Staffordshire . . .	Aug. 17	Sept. 29	44	378	77	301	21	15,066	$2\frac{1}{2}$	$\frac{5}{8}$
*South Shields	Dec. 22, 1831	Oct. 8	148	493	147	346	30	19,756	$2\frac{1}{2}$	$\frac{3}{4}$
Ely, Cambridgeshire	March 17, 1832	May 8	53	149	61	88	40	6,189	$2\frac{3}{8}$	1
Bedworth, Warwick	Sept. 9	Nov. 27	80	92	26	66	30	3,980	$2\frac{1}{3}$	$\frac{2}{3}$
Carlisle	June 13	Nov. 21	162	448	265	183	57	20,006	$2\frac{1}{4}$	$1\frac{5}{8}$
Clifton	Aug. 15	Sept. 7	24	196	64	132	32	8,811	$2\frac{1}{4}$	$\frac{3}{4}$

Sheffield	July 10	Nov. 3	117	1,347	402	945	30	59,011	$2\frac{1}{4}$	$\frac{11}{16}$
*Lancaster, including	Dec. 17, 1831	Sept. 6	45	35	20	15	$57\frac{1}{2}$	12,613	$2\frac{1}{10}$	$\frac{15}{16}$
The Lunatic Asylum	Sept. 13, 1832	Oct. 16	34	246	94	152	40			
Penzance, Cornwall	Sept. 17	Nov. 20	65	186	64	122	$32\frac{1}{4}$	8,621	$2\frac{3}{16}$	$\frac{3}{4}$
Wednesbury, Staffordshire	Aug. 9	Oct. 9	62	175	78	97	45	8,437	$2\frac{1}{12}$	$\frac{15}{16}$
North Shields, and Tynemouth	Dec. 10, 1831	March 21	103	339	98	241	29	16,926	2	$\frac{9}{16}$
Darlaston, Stafford	Aug. 18, 1832	Sept. 29	43	127	57	70	45	6,647	$1\frac{15}{16}$	$\frac{7}{8}$
Berwick-upon-Tweed	Sept. 11	Nov. 8	60	172	84	88	48	8,920	$1\frac{7}{8}$	$\frac{15}{16}$
Totnes	Aug. 4	Sept. 24	52	64	17	47	27	3,442	$1\frac{7}{8}$	$\frac{1}{2}$
West Bromwich, Staffordshire	July 15	Sept. 21	69	279	59	220	18	15,327	$1\frac{13}{16}$	$\frac{3}{8}$
Salford, Lancashire	July 13	Nov. 7	118	701	216	485	$31\frac{1}{2}$	40,786	$1\frac{3}{4}$	$\frac{1}{2}$
York	June 3	Oct. 8	128	450	185	265	40	25,359	$1\frac{3}{4}$	$\frac{11}{16}$
King's Swinford	June 29	Sept. 25	89	266	83	183	$31\frac{1}{4}$	15,156	$1\frac{3}{4}$	$\frac{9}{16}$
Nottingham	June 5	Nov. 7	136	796	296	500	$37\frac{1}{2}$	50,680	$1\frac{9}{16}$	$\frac{9}{16}$
Worcester	July 14	Oct. 26	105	293	79	214	$27\frac{1}{2}$	18,610	$1\frac{9}{16}$	$\frac{7}{16}$
Kendal	July 2	Nov. 14	136	168	68	100	40	11,265	$1\frac{1}{2}$	$\frac{5}{8}$
Nuneaton, Warwick	Sept. 17	Nov. 20	65	123	56	67	45	7,799	$1\frac{1}{2}$	$\frac{3}{4}$
Leeds, Yorkshire	May 29	Nov. 23	179	1,817	702	1,115	39	123,393	$1\frac{7}{16}$	$\frac{5}{8}$
Wisbeach, Cambridge	July 19	Sept. 17	61	103	41	62	40	7,250	$1\frac{7}{16}$	$\frac{19}{32}$
Devonport	July 9	Oct. 27	111	455	228	227	50	34,883	$1\frac{5}{16}$	$\frac{11}{16}$
Worsley, Lancashire	Sept. 9	Oct. 28	49	95	16	79	$16\frac{1}{2}$	7,191	$1\frac{5}{16}$	$\frac{3}{16}$
Wakefield, York	June 24	Oct. 10	109	156	62	94	40	12,232	$1\frac{1}{4}$	$\frac{1}{2}$
Bedford	Sept. 9	Nov. 27	80	81	36	45	45	6,957	$1\frac{3}{16}$	$\frac{1}{2}$
Bristol	July 16	Nov. 23	141	1,612	626	986	39	103,886	$1\frac{3}{16}$	$\frac{9}{16}$
Wantage, Berks	Sept. 26	Oct. 10	15	30	18	12	60	2,507	$1\frac{1}{16}$	$\frac{11}{16}$
*Doncaster	Jan. 10	Aug. 8	49	112	26	86	23	10,801	$1\frac{1}{27}$	$\frac{1}{4}$
Shrewsbury	Aug. 4	Oct. 31	89	219	75	144	35	21,277	$1\frac{1}{32}$	$\frac{11}{16}$
Lynn, Norfolk	April 10	Aug. 27	140	134	49	85	$37\frac{1}{2}$	13,370	1	$\frac{3}{8}$
Manchester	June 29	Dec. 5	160	1,323	674	649	55	142,026	$\frac{15}{16}$	$\frac{15}{32}$
Bridport	Aug. 16	Sept. 8	24	35	16	19	48	4,242	$\frac{7}{8}$	$\frac{3}{8}$

Name of Place affected.	Date of First Case.	Date of Last Case.	Days' Duration	Number of Cases.	Number of Deaths.	Number of Recoveries.	Proportion of Deaths to Cases per Cent.	Population.	Proportion of Cases to Population per Cent.	Proportion of Deaths to Population per Cent.
Kidderminster	Aug. 12	Sept. 12	32	137	67	60	52½	14,981	$\frac{13}{16}$	$\frac{7}{16}$
Oxford	June 26	Nov. 28	156	173	81	92	47	20,434	$\frac{13}{16}$	$\frac{3}{8}$
Barking, Essex	Sept. 5	Sept. 24	20	46	18	28	38	8,036	$\frac{5}{8}$	$\frac{1}{4}$
Norwich	Aug. 21	Oct. 17	57	321	129	192	40	61,110	$\frac{17}{32}$	$\frac{19}{32}$
Bradford, York	Sept. 5	Oct. 26	52	114	30	84	23	23,233	$\frac{1}{2}$	$\frac{1}{8}$
Portsmouth	July 26	Sept. 22	150	192	86	106	45	46,282	$\frac{7}{16}$	$\frac{3}{16}$
Wigan	June 25	Aug. 2	39	85	30	55	35	20,774	$\frac{7}{16}$	$\frac{5}{32}$
Stoke-upon-Trent	Aug. 28	Dec. 20	125	165	46	119	26	37,220	$\frac{3}{8}$	$\frac{1}{8}$
Dewsbury, York	Sept. 24	Oct. 27	34	23	12	11	52	8,272	$\frac{5}{16}$	$\frac{10}{16}$
Maidstone	June 24	Oct. 10	99	36	16	20	45	15,387	$\frac{1}{4}$	$\frac{1}{10}$
Bath	July 28	Oct. 26	80	74	49	25	62	38,063	$\frac{3}{16}$	$\frac{1}{8}$
Edmonton	Sept. 29	Sept. 29	1	16	11	5	65	8,192	$\frac{1}{5}$	$\frac{5}{36}$
Derby	June 24	Dec. 3	86	32	16	16	50	23,607	$\frac{1}{8}$	$\frac{1}{15}$
Dover	June 23	July 12	20	15	10	5	66	11,924	$\frac{1}{8}$	$\frac{1}{12}$
Rochester, Kent	July 10	July 17	8	10	3	7	30	8,075	$\frac{1}{8}$	$\frac{1}{27}$
Taunton	Oct. 4	Oct. 26	23	13	3	10	24	11,139	$\frac{1}{8}$	$\frac{1}{37}$
Stockport, Cheshire	June 19	Oct. 13	117	66	29	37	45	66,610	$\frac{1}{10}$	$\frac{1}{23}$
Bolton, Great	Aug. 23	Sept. 29	38	26	12	14	47	28,299	$\frac{1}{10}$	$\frac{1}{24}$
Chester	July 12	Sept. 8	59	20	14	6	73	21,363	$\frac{1}{11}$	$\frac{1}{15}$
Gosport	Nov. 30	Dec. 7	8	5	5	0	100	6,184	$\frac{1}{12}$	$\frac{1}{12}$
Reading, Berks	Aug. 16	Oct. 9	8	12	8	4	66	15,595	$\frac{1}{13}$	$\frac{1}{19}$
Lincoln	July 19	July 19	1	5	3	2	60	11,892	$\frac{1}{24}$	$\frac{1}{40}$
St. James and St. Paul, Bristol	Aug. 15	Sept. 5	22	7	4	3	57	19,634	$\frac{1}{28}$	$\frac{1}{49}$
Preston	Aug. 18	Oct. 26	70	9	6	3	66	33,112	$\frac{1}{37}$†	$\frac{1}{55}$†

Birmingham	July 7	Nov. 6	123	31	21	10	70	146,986	1/50	1/150
Yarmouth, Norfolk	March 22	March 23	2	2	2	0	100	21,115	1/105	1/105
Hales Owen, Salop	Sept. 18	Sept. 18	1	1	1	0	100	11,839		
Halifax	Sept. 18	Sept. 18	1	1	1	0	100	15,382		
Collieries and other villages round Newcastle	Feb. 16	April 12	57	1,598	259	1,339	16½			
*London and its vicinity . . .	Feb. 14	Dec. 18	230	11,020	5,275	5,745	47⅞	1,424,896	25/39	22/64
N.B.—The number of days' duration is made up as follows:— .	Feb. 14	May 15	91	1,848	994					
	June 15	Oct. 31	129	9,142	4,266					
	In Nov. & Dec.		10	30	15					
		Total . .	230	11,020	5,275					

SCOTLAND.

*Duddingstone, Edinburgh . . .	March 30, 1832	Dec. 17, 1832	102	105	52	53	50	397	25	12½
Kirally, Fife, being the Dunnikier and Sinclair Towns . . .	Aug. 11	Nov. 24	106	137	56	81	40	1,240	10 1/10	4½
Linwood, Renfrew	July 5	July 20	47 17 ?	17	9	8	52½	169	10	5/16
Tranent	Jan. 16	Feb. 28	44	282	78	204	27½	3,620	7¾	2⅙
Clackmannan	April 5	Nov. 13	223	323	75	248	23	4,266	7⅝	1¾
Dumfries	Sept. 15	Dec. 11	88	835	418	417	50	11,606	7⅕	3¾

† These numbers must be incorrect, as thus more persons died than were attacked. If for 1/14 we read 1/56, the proportion is nearly maintained.

Name of Place affected.	Date of First Case.	Date of Last Case.	Days' Duration	Number of Cases.	Number of Deaths.	Number of Recoveries.	Proportion of Deaths to Cases per Cent.	Population.	Proportion of Cases to Population per Cent.	Proportion of Deaths to Population per Cent.
Preston Pans	Jan. 25	May 10	107	144	28	116	20	2,322	$6\frac{3}{4}$	$1\frac{1}{2}$
Ditto, West	March 6	March 17	12	10	6	4	60			
Ayr	July 20	Oct. 18	91	436	190	246	44	7,606	$5\frac{3}{4}$	$2\frac{1}{2}$
Musselburgh, Edinburgh	Jan. 18	March 28	63	447	202	245	45	7,836	$5\frac{3}{4}$	$2\frac{9}{16}$
Slaines Colleston, Aberdeen	Aug. 18	Oct. 15	28	54	9	45	$16\frac{1}{2}$	1,134	5	$\frac{3}{4}$
Troqueer, Kirkcudbright	Sept. 21	Nov. 26	67	235	125	110	53	4,665	5	$2\frac{5}{8}$
Inverness, Burgh	May 9	Nov. 4	97	556	177	379	31	14,324	$4\frac{5}{8}$	$1\frac{1}{3}$
Ditto, Landsward Part	Oct. 3	Nov. 18	47	60	12	48	20			
Wick, Caithness	Aug. 7	Nov. 3	89	411	69	342	17	9,850	$4\frac{1}{8}$	$\frac{5}{8}$
Coldstream	Jan. 25	March 29	65	117	41	76	35	2,897	4	$1\frac{3}{8}$
Govan, Renfrew	March 1	July 27	149	192	77	115	40	4,967	$3\frac{3}{4}$	$1\frac{1}{2}$
Port Glasgow, Renfrew	April 9	Oct. 20	143	192	69	123	37	5,192	$3\frac{3}{4}$	$1\frac{5}{16}$
Cupar, Burgh, Fife	Aug. 23	Dec. 14	114	130	63	67	$47\frac{1}{2}$	6,743	$3\frac{1}{2}$	$1\frac{3}{4}$
Ditto, District	Aug. 14	Dec. 30	139	92	45	47	50			
Tain, Ross	Aug. 27	Oct. 25	60	107	55	52	52	3,078	$3\frac{1}{2}$	$1\frac{3}{4}$
Greenock	Feb. 29	Oct. 30	244	850	436	414	$50\frac{3}{4}$	27,571	$3\frac{1}{8}$	$1\frac{9}{16}$
Alloa, Clackmannan	April 25	Nov. 21	135	186	72	114	40	6,377	$2\frac{7}{8}$	$1\frac{1}{8}$
Haddington	Dec. 25, 1831	May 28	149	139	65	74	45	5,883	$2\frac{3}{8}$	$1\frac{1}{16}$
Kilmarnock, Ayr	June 9, 1832	Oct. 5	119	399	205	194	58	18,093	$2\frac{3}{16}$	$1\frac{1}{8}$
Monkland, Old, Lanark	April 12	May 4	23	209	125	84	65	9,580	$2\frac{3}{16}$	$1\frac{5}{16}$
Ruthvern, Banff	Sept. 3	Oct. 22	50	134	15	119	$11\frac{1}{2}$	6,484	$2\frac{1}{16}$	$\frac{3}{16}$
•Rutherglen, Lanark	April 1	Oct. 19	99	127	65	62	52	5,503	$2\frac{1}{3}$	$1\frac{1}{5}$
Kirally, Fife	Aug. 11	Nov. 17	68	96	48	48	50	5,034	$1\frac{7}{8}$	$\frac{15}{16}$

Leith	Jan. 26	Dec. 7	327	448	267	181	58	28,885	$1\frac{7}{8}$	$\frac{13}{16}$
— Newhaven	May 4	Oct. 16	173	77	35	42	$47\frac{1}{2}$			
— Rastratrig, Rock Lodge, &c. .				27	17	10				
Dundee	April 27	Nov. 19	207	808	512	296	63	45,355	$1\frac{13}{16}$	$1\frac{1}{8}$
Dysart, Fife	July 15	Dec. 18	157	98	39	59	40	6,259	$1\frac{5}{8}$	$\frac{5}{8}$
Aberdeen	Aug. 27	Dec. 31	122	251	99	152	40	32,912	$1\frac{1}{3}$	$\frac{5}{16}$
Dunbar, including Haddington and West Bainer . .	Sept. 17 Feb. 4	Oct. 23 Feb. 28	37 25	67	38	29	55	5,272	$1\frac{1}{4}$	$\frac{3}{4}$
Paisley	Feb. 15	Nov. 8	267	761	444	317	$57\frac{1}{2}$	57,466	$1\frac{5}{16}$	$\frac{13}{16}$
— Neilston	Oct. 1	Oct. 1	1	6	5	1	80			
Thurso, Caithness	July 27	Sept. 20	56	63	26	37	$42\frac{1}{2}$	4,679	$1\frac{5}{16}$	$\frac{9}{16}$
Edinburgh	Jan. 22	Dec. 26	340	1,886	1,065	821	$56\frac{1}{2}$	162,403	$1\frac{9}{32}$	$\frac{9}{16}$
— Water of Leith . . .	March 9	Dec. 24	291	125	59	66	49			
— Carron Mills	March 10	Dec. 3	271	43	26	17	58			
— Bonnington & Stockbridge				12	9	3				
Perth	March 10	July 4	117	114	66	48	$57\frac{1}{2}$	20,016	$\frac{5}{8}$	$\frac{5}{16}$
Stirling	June 7	July 27	51	54	35	19	65	8,556	$\frac{5}{8}$	$\frac{7}{16}$
Falkirk, Stirling	Feb. 20	May 15	86	69	31	38	45	12,743	$\frac{5}{8}$	$\frac{1}{4}$
Arbroath, Forfar	Aug. 6	Sept. 10	36	23	13	10	52	6,660	$\frac{1}{3}$	$\frac{1}{5}$
St. Andrew's, Fife	Oct. 20	Oct. 22	3	7	5	2	70	4,899	$\frac{1}{7}$	$\frac{1}{10}$
Campbetown, Argyle	April 17	June 2	47	13	10	3	74	9,472	$\frac{1}{7}$	$\frac{1}{9}$
Glasgow	Feb. 12	Nov. 4	267	6,198	2,994	3,204	$48\frac{1}{2}$	202,426	$\frac{1}{32}$	$\frac{1}{64}$
— Bushby	March 20	April 21	33	16	8	8	50			
— Baillerton	March 2	March 6	5	12	4	8	33			
— Burhead	Feb. 25	April 15	51	2	1	1	50			
— Pollokshaun	March 10	Nov. 8	136	292	143	149	49			
— Maryhill	Feb. 14	March 28	44	61	24	37	40			

WALES.

Name of Place affected.	Date of First Case.	Date of Last Case.	Days' Duration	Number of Cases.	Number of Deaths.	Number of Recoveries.	Proportion of Deaths to Cases per Cent.	Population.	Proportion of Cases to Population per Cent.	Proportion of Deaths to Population per Cent.
Swansea	Aug. 9	Sept. 22	45	430	152	278	35	13,256	$3\frac{1}{4}$	$1\frac{1}{8}$
Merthyr Tydfil, Glamorgan	Aug. 31	Nov. 27	89	608	160	448	26	22,083	$2\frac{3}{4}$	$\frac{3}{4}$
Denbigh	June 10	July 21	42	105	47	58	42	3,786	$2\frac{3}{4}$	$1\frac{1}{4}$
Flint	May 7	June 30	55	37	18	19	50	2,216	$1\frac{5}{8}$	$\frac{13}{16}$
Haverfordwest	Oct. 5	Oct. 28	24	43	16	27	$37\frac{1}{2}$	3,915	$1\frac{1}{8}$	$\frac{3}{8}$
Carnarvon	Oct. 15	Nov. 29	46	78	30	48	37	7,642	$1\frac{1}{16}$	$\frac{3}{8}$
ISLE OF MAN.										
Douglas	June 27	Sept. 20	106	276	146	130	53	6,054	$4\frac{5}{8}$	$2\frac{7}{16}$
IRELAND.										
Up to March 1, 1833				54,552	21,171	33,381	$38\frac{7}{8}$			

A case of cholera, supposed to be brought from England, occurred at Calais on March 15, 1832, and on the 26th the disease was discovered in Paris: here it raged till September 30, when it finally disappeared, having carried off 18,402 persons.

The order of time now brings me to speak of the extension of this most awful disease across the Atlantic to the continent of America, a distance which it was reasonably hoped might bid defiance to the conveyance of infection; but, nevertheless, it is believed that an emigrant ship carried it over, and the mortality was much greater than in England.

The disease first appeared in our own territories at Quebec, whither the ship was bound, on June 8, 1832, and on the 10th at Montreal, higher up the River St. Lawrence; it spread furiously to Kingston, on the Lake Ontario, and all over the surrounding country.

In the United States it appeared at New York on June 24, and at Albany on July 3, both being on the River Hudson; at Newcastle, on the Delaware, about the end of July, ordinary cholera having been very prevalent since June 18th; Philadelphia was attacked July 11. The disease spread all over the continent, extending even to Yucatan, in South America, where Mr. Stephens, the assiduous searcher for the ruined cities abounding in that neighbourhood, found remembrances of it among the Indian population.

Of these latter attacks I have no further account; but there is so good a description of the two attacks of cholera at Kingston, in Canada, given by Mr. Henry, Surgeon to the Forces, in his recently published "Events of a Military Life," that I am induced to transcribe a portion, condensing it, however, as much as possible. "The disease reached Kingston on June 17, 1832. Here the military authorities had taken care to form a camp on a healthy spot for the married men, who usually lived in the town, and also to perfectly isolate the barracks, to lighten the duties of the soldiers as much as possible, to regulate the canteen, and to cause all persons to be regularly examined by the medical officers; in consequence, the disease did not attack the army till July 4, when two grenadiers were seized, who were bled largely, and recovered; ten others were treated in the same way, and recovered, giving hopes that a cure was found; but, immediately after, three men and a woman were seized, who died in twelve hours, notwithstanding the bleeding; but (and this is a remarkable circumstance) they lived on Point Frederick, near the dock-yard, the air of which was vitiated by the rotting ships; the company was removed next morning to the camp, and had no more cholera." Mr. Henry here considers that two forms of disease were present, one of which had much the character of tetanus, or lock-jaw. This genus was marked by early, severe, and universal spasms, affecting every muscle, and causing great torture; this, he says, gave way at once to early and copious bleeding; but in the other more dangerous form, when the disease stole on quietly, the patient sunk early into hopeless debility, and here medicine was of little avail.

"Mr. Henry and Dr. Sampson, the principal practitioner in Kingston, tried saline transfusion in twenty hopeless cases, but without curing any: in one case, a poor emigrant from Yorkshire, life was prolonged for seven days by constant pumping; this man almost instantaneously recovered voice, strength, colour, and appetite, and they hoped that they had found the elixir of life.

"There were 36 cases of cholera in the Sixty-sixth Regiment, of whom 17 died; no child suffered; four-fifths were attacked during the night. The disease ceased entirely in the middle of October.

"The second invasion of the cholera, beginning July 26, 1834, was more fatal than the first; in 1832, 200 died out of a population in Kingston of 5,000; in 1834, not less than 300 were carried off. This latter epidemic had more of the asthenic character than the former; that is, it was more marked by symptoms of debility and prostration immediately after the first attack, and less by violent spasms and extreme distress." Again, Mr. Henry noticed a ferruginous taste in the air, and this was observed in Paris and other places where cholera raged in 1832. (This bears a curious analogy with Dr. Prout's experiments on the air, mentioned in his Bridgewater Treatise, p. 371, and "On Stomach and Urinary Diseases," p. 21, 4th edition.) Again the same system of isolation, &c., was adopted, and steady noncommissioned officers were appointed to observe the men at their meals, and to report if they perceived any loss of appetite in any individual, that the disease might be crushed in the bud. The men were kept to light and amusing employment, but all severe toil was avoided. "We," he says, "had only eight adult cases of cholera out of 769 individuals; however, we had a host of bowel complaints, many of which would, no doubt, have merged in the pestilence, but for early treatment. This was a ratio about twenty-fold less than amongst the civil population, and our total loss was fifty-fold less, or thereabouts, being only one man and two children. There was a material difference between the practice of 1832 and 1834; laudanum, brandy, and other stimulants, were administered much more sparingly than before, when, probably, they had been too frequently used. Bleeding, also, was not so common; for those violent tetanic spasms, which it had so frequently relieved in the former year, were not now so general. Calomel had been given then very largely, but was now used less indiscriminately. In 1834, acetate of lead was used in some hopeless cases with much benefit. My favourite remedy was castor oil, combined with a small quantity of laudanum, given in some grateful and demulcent fluid, as hot as possible; making the patient lie on his right side, for the assistance of gravitation towards the pylorus, and to prevent nausea. In some hundred cases on this and the former occasion I witnessed the most excellent effects from this remedy, and, moreover, experienced them myself in the early stage of two attacks of cholera I had at Kingston." After some notice of the great liability of some spots and the non-liability of others, he adds :—" By the middle of September, the health of Kingston was restored; but half the inhabitants were in mourning."

The cholera broke out at Havannah in February 1833, at Oporto very early in January, in Malaga and other parts of Spain about the same time, and raged dreadfully at Madrid at the commencement of 1834. It re-appeared in the South of France in 1835, and passing along the southern coast, attacked Genoa, Naples, Sicily, Malta, and Rome; the two last named suffered most in August 1837. The number of deaths at Rome during the height of the epidemic amounted, in one day, to 300, and, for many days, more than 200 died daily.

The disease partially re-appeared in London in 1834 and 1837, as has been ably described in the Transactions of this Society by Dr. Budd.

It is stated also that Holland and Sweden, the only part of Europe hitherto unmentioned, suffered from cholera; but I have been unable to find any historical account of the attack.

CASE OF

NECROSIS OF THE LOWER JAW,

RECOVERED FROM, WITHOUT DEFORMITY.

By WILLIAM SHARP, F.R.S.,
LATE SENIOR SURGEON TO THE BRADFORD INFIRMARY.

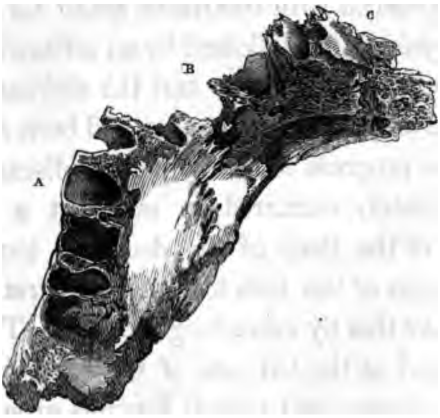
READ MAY 28TH, 1844.

Esther Watson, aged 20, consulted me on the 8th of September 1842, for an extensive necrosis of the lower jaw, with ulceration of the integuments under the chin. The mouth and lower part of the face, from the tumefaction, the ulcers, and the fœtid discharge, presented a very disagreeable appearance. It had commenced with toothache about six months before, the pain being followed by an inflamed swelling, the swelling by abscess, and the abscess by ulceration. No effectual treatment had been adopted to arrest the progress of a very painful disease.

It immediately occurred to me that a fungus arising out of the fang of the decaying tooth had been the origin of the mischief, and my first object was to remove this by extracting the tooth. The posterior bicuspid of the left side of the lower jaw was accordingly drawn, and a small fungous growth was found attached to one of its fangs. On examining the jaw with a probe through the ulcerated openings, a large extent of denuded bone was felt, but it appeared to be very firmly attached. My further attempts were therefore limited to prescribing an alum gargle, to be freely used to cleanse the mouth, and the zinc ointment to be applied externally.

By these means the *comfort* of the patient was greatly promoted, and time was allowed for the process of separation to advance: they were continued, with the occasional application of a poultice, for three months.

On the 13th of December, it being evident that the dead bone was completely detached from the living, the existing openings under the chin were thrown into one, and somewhat enlarged, by two small incisions; the bone was taken hold of by a pair of forceps, and immediately, without pain or hæmorrhage, extracted. The portion removed amounted to about two-thirds of the entire lower jaw, and contained several of the alveolar processes, as may be seen in the annexed wood-cut, which



represents the sequestrum viewed from above and posteriorly. A, Socket of the posterior bicuspid tooth, which had been extracted. B, The symphisis. C, Portion of the socket of the anterior bicuspid of the right side.

A slight dressing was applied to the wound, and on desiring the patient to open her mouth, to my very agreeable surprise, I found the entire set of excellent teeth, (with the single exception of the one I had extracted,) perfectly fast, and in their proper places.

On the 5th of January 1843, (in three weeks,) the wound was very nearly healed, and the face had now recovered a perfectly natural appearance, having lost the swelling and inflammation which had disfigured it for so many months. She then returned into the country, and, as far as I have been able to learn, has since continued quite well.

REMARKS

ON THE

PATHOLOGY OF MOLLITIES OSSIUM.

WITH CASES.

BY SAMUEL SOLLY, F.R.S.,
SENIOR ASSISTANT SURGEON TO, AND LECTURER ON CLINICAL SURGERY AT
ST. THOMAS'S HOSPITAL, SENIOR SURGEON TO THE ROYAL GENERAL
DISPENSARY, ETC.

READ JUNE 25TH, 1844.

MY attention has been lately called to this rare disease, in consequence of being so fortunate as to have the opportunity, in two cases, of tracing its progress during life, and examining the morbid appearances after death. There are many such cases on record, notwithstanding the rarity of their occurrence. But there is considerable difference of opinion as to the real nature of the disease. Dr. Kilian,* who is, I believe, one of the latest writers on this subject, states that the disease presents itself under two very distinct forms. "In the one, the bones generally, but especially the bones of the pelvis, present a dirty brownish grey colour, not transparent where thin, and flexible like wax. In the second, the bones present a dazzling whiteness, and a light transparent open texture. The first kind of bones do not dry clean, but remain greasy. The second dry quickly, and give no greasy feel."

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* Beiträge zu einer genaueren Kenntniss der allgemeinen Knochenerweichung der Frauen und ihres Einflusses auf das Becken; von H. F. Kilian. Bonn, 1829.—P. 24.

The disease which I have had an opportunity of observing differs from that described by Dr. Kilian: but I believe it is the usual form in which softening of the bones presents itself in the adult. I would suggest that it should be distinguished by the title, *osteo malacia rubra et fragilis*, from the colour which the bones invariably exhibit in their interior, and the fact that they usually break, and seldom bend as in rickets. The two adjectives appear advisable, as the redness in the interior, according to the observation of Mons. Guerin, exists in the early stages of rickets, while the liability to fracture is not characteristic of this disease alone.

In the Encyclopædia of Medicine, under the head "Rickets," Dr. Cummin has treated of mollities ossium, calling it the rickets of adults; and Mr. Curling, in the 20th volume of the Transactions of this Society, has described the disease as merely a form of atrophy of bone. Humbly believing that rickets, whether occurring in the child or the adult, is a disease essentially different from mollities ossium,. and that the latter is one dependent on a specific action of the blood-vessels of the bone, and not a mere atrophy, it will be my endeavour to show the distinction between them. It is however but justice to Dr. Cummin and Mr. Curling to say that they have both given an admirable and minute account of this disease, and that it is in his title only that the former has confounded it with rickets, and the latter has given very full, though not to my mind satisfactory reasons for regarding the disease "in every respect a premature decay of the osseous system."* Before entering into my own hypothesis regarding the nature of this disease, I will proceed to relate two cases which have lately come under my notice, the facts of which will I am sure prove interesting to the Fellows of this Society, even if they differ from me in my explanation of them.

The first instance I have to relate did not come under my notice until after the death of the patient. I have spared no pains to seek out her previous history. Most of these details have already appeared in print, but being unaccompanied by any drawing, they were necessarily deprived of much of their value. The progress of the disease was so insidious, that its real nature was not apparent until a short time previous to her death. To Dr. Conolly and Dr. Davey, of Hanwell, Mr. Hunter Temple, of Islington, Mr. Dutton, of York-street, Bryanstone-square, and Mr. Lambert, of St. Luke's Hospital, my thanks are due for all the particulars of her case, which I now bring before the Society.

C. S., a young woman aged twenty-nine, born of healthy parents, both of whom are now living and well, the mother aged sixty-one, the father sixty-six.

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* Med.-Chir. Trans. vol. xx. p. 370.

She lost one sister at the age of twenty-one, of apoplexy, and a brother at the age of thirty-eight, of diseased liver, and some affection of the head.

The subject of the present case enjoyed a good state of health up to the age of sixteen, was well developed and inclined to be corpulent, her mental faculties were remarkably acute, and at the early age of sixteen she held the situation of governess in the family of a colonel in the army. Soon after the age of nineteen she had an attack of scarlet fever, and from this period her health declined, and about two or three years afterwards, from a very slight cause, the clavicle was fractured, and never united again. She now complained of violent pains in her back, and began to stoop, and could not support herself in the upright posture for any length of time. A whitish sediment in the urine was observed, with a frequent desire to void it, which was occasionally attended with pain. The spine began to yield about the age of twenty-four or twenty-five; at this time she had paralysis of the right hand, which took place suddenly, and lasted about fourteen days. She had no medical advice. A visit to Gravesend was proposed by her friends, but in crossing King William-street she fell down and struck her knee against the curb stone. For this accident she was admitted as an out-patient at the Western Dispensary, and continued so about six months; she derived benefit from bathing the knee with salt water, and the limb was restored sufficiently to enable her to walk. After this she kept a day-school, but became nervous and desponding. Her friends remarked great difference in her manner, her disposition seemed changed from an open and amiable temper, to one of restlessness and suspicion. They became fearful that she was going out of her mind. She still however continued to conduct her school with her usual attention and care.

In May 1839 being exposed to damp, she had an attack of acute rheumatism, when she was placed under the care of Mr. Dutton, of York-street, Bryanstone-square.

She was confined to her bed for six weeks, but during the course of her disease she complained very much of pain over the head, but particularly at the posterior part. She was occasionally violently delirious. At the approach of convalescence, mania set in, and during its existence she attempted to commit suicide.

In August 1839 she was removed to St. Luke's Hospital. At this period her general health was better than it had been for some time, and her appetite was good, but the catamenia had ceased for about three months. She was much deformed about the hips and shoulders, but not in her extremities.

Her mother reports that she was able to walk for about six months after her admission into the hospital. Though suffering a good deal of pain, her mind was improving, and hopes were entertained of her speedy and total recovery, when she slipped down, and suffered much at the time, but there was no fracture, and the injury was considered of so slight a nature, that the surgeon of the institution was not consulted about it. But from this time the mother states she was not able to stand alone; she was carried, or pushed herself from place to place on her haunches, and though she frequently screamed violently as if in pain, she had no fit, nor did she lose her senses: she was not unruly, nor at all maniacal, but worked with her needle in her usual quiet manner. The progress of the disease affecting the condition of the lower extremities was evidently the sole cause of her inability to walk. The head was now first observed by her mother to be enlarged, and the eyes to project, caused no doubt by the thickening of the walls of the orbits. After remaining at St. Luke's thirteen months, she was discharged incurable, but not paralytic: on this point I took care to assure myself particularly. From this hospital she went to the Marylebone Infirmary, where she remained five weeks, from thence she was removed to the Islington Infirmary, where she remained two months, but I have not been able to gain any particulars of importance regarding her condition in these institutions. She was then sent to the Lunatic Asylum at Hoxton for six weeks, was again received into the Islington Infirmary, from whence she was sent to Hanwell, on the 11th of April 1842.

At the time she was received into this asylum she was much emaciated, and enfeebled, with loss of power in her lower extremities; and two or three months before her death, the bones of the extremities were observed to lose their natural direction, and become curved: subsequently, fractures took place from the slightest causes. She suffered excruciating pain during the whole time she was in the asylum, which she referred to her bones; she did not suffer from spasm of the muscles, as many of these cases do, and the urine, during the whole time she was at Hanwell, was clear and natural. Her appetite was good, and all the functions duly performed, with the exception of the catamenia. Large doses of morphia and other sedatives were administered, to procure sleep and relieve pain. Her mental aberration was extremely slight. Her sufferings were terminated by death on the 28th October 1842.

Post-mortem examination of the body.—Hanwell, October 29th.—Height, measured after death, four feet two inches—great emaciation. Head large in proportion to the size of the body; chest very much deformed, pinched up, and projecting anteriorly,—very narrow from side to side; the ribs appeared widened, the pelvis extremely narrow. Spine curved forwards almost at a right angle in the upper dorsal and cervical regions. Both clavicles broken and bent at an acute angle. Head of one humerus swollen, shaft of the left, broken and bent; radius and ulna slightly swollen, the right radius broken, the lower extremities enlarged at the epiphyses; ossa femora on both sides broken, that on the right side in one place, that on the left in two; the fractured portions were held together by the periosteum, but there was no attempt at union, no appearance of callus; tibia and fibula on both limbs bent; all the bones of the extremities could be fractured with the slightest force—by merely pressing them between the finger and thumb, they gave way and cracked like a thin-shelled walnut. A longitudinal and transverse section of the long bones showed that the osseous structure of the bone was nearly absorbed, a mere shell being left. The interior was filled with a dark grumous matter, varying in colour from that of dark blood to a reddish light liver colour. I could not detect any pus globules in it under the microscope. The bones of the vertebral column and ribs were similarly affected; cranium very much thickened, and at least half an inch in diameter, so very soft as to be easily cut with a knife, and very vascular; the two tables were confounded, and the diploë obliterated. Thin slices of the cranium, under the microscope, showed that a considerable alteration had taken place in its ultimate structure. The laminated structure of the outer and inner tables was extensively absorbed. The Haversian canals enormously dilated, and the osseous corpuscles diminished in quantity. Joints all healthy; cartilages perfectly natural. Weight of brain 2lbs. 5½℥; arachnoid membrane milky and slightly thickened. The brain as well as the viscera of the chest and abdomen were perfectly healthy.

Chemical analysis of the bone by Dr. Leeson:—

Medulla.

Animal matter	24·78
Phosphate and carbonate of lime	1·83
Water	73·39
	100·00

Bone.

Animal matter	18·75
Phosphate and carbonate of lime	29·17
Water	52·08
	100·00

October 2, 1843.—I visited another well-marked case of this formidable disease in company with Dr. Borland, of Trinity Square.

The patient was a female—Sarah Newbury. I found her sitting up in bed, her countenance very cheerful, and, excepting its extreme emaciation, not unhealthy. Her mind was active, and all her answers to my questions clear and intelligent. She is thirty-nine years of age, and has been married nine years and a half to a strong healthy man in the police force; has never had any children. Her height at the time of her marriage was about five feet five inches and a half; her general figure slight. She was born in Dorsetshire, but was in service for fourteen years in London, as a housemaid, previous to her marriage. She was always able to do her work with ease. Her general health has been good, though, she says, she was never particularly strong or robust, and has been subject to sick headaches: she has been always regular at the monthly periods, but has suffered both before and after marriage from the white discharge. She considers that her strength has been failing her for about three years, but not more than that time. In May 1840, that is, about three years and a half ago, she was seized with a violent pain in her back when she was stooping, and after that she had a strange sensation down her right leg, as if a pea were rolling up and down. She does not remember any other circumstance relating to her general health until June 1841, when she had rheumatic pains in her limbs, but never any true rheumatic fever; never any swelling of the joints; from this time she constantly suffered from what she considered rheumatic pains, and was so feeble on her feet, that in February 1842 she had a fall, which, in fact, she says, she had been expecting every day, when her left thigh was much bruised, but she did not feel anything give way; but in consequence of the bruises she was confined to her room. After this she occasionally suffered a *great* deal of pain in her limbs, which, she says, seemed to be in her bones, and she was not able to walk unless on her left leg, and with assistance, dragging the right after her. In the April following, that is, about two months after the accident, when her husband was lifting her from the fireplace to carry her to bed, she says she suddenly felt the most excruciating pain, just as if her thighs were being broken into a thousand pieces; and her husband told me that he felt her thighs give way, and that they were suddenly drawn up; and from this time she has been entirely confined to her bed. She says that the muscles of her arms were now painful and swollen, but by rubbing them with oils she relieved them.

Her present condition, October 2nd, 1843.—I do not perceive anything abnormal in the appearance of the bones of the head or face. The countenance is emaciated. There is a lateral curvature of the spine; in the dorsal region the convexity is to the right, the concavity to the left. In the centre of the lumbar region, the spine curves forwards, the inferior vertebræ with the upper portion of the sacrum projecting backwards. The lower portion with the coccyx turns suddenly forwards, forming almost an acute angle.*

On the left side the ribs project backwards to their anatomical angles; from that point they are bent directly forwards, forming an acute angle, which projects posteriorly, looking at first sight like the spinous processes of the vertebræ in a very thin person; the side of the thorax from the angles being flattened or slightly concave, and the lateral diameter of the chest much diminished in consequence. This latter deformity has evidently been produced by her lying altogether on the left side, either on a pillow or on her arm.

The clavicles have both been fractured and re-united, and are bent at a right angle in the centre.

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* See Plate VI. fig. 2.

The bones of the arm and hand are all natural. I could not examine very accurately the ilia, but I perceived that they were evidently folded inwards. Both thigh bones are broken. The lower portion of the left is twisted round, so that the patella faces inwards, as represented in the drawing.* The right thigh is bent completely at an acute angle in the centre. The lower portion turned outwards. The tibia and fibula of both legs, and the rest of the bones, appear quite healthy.

I now made her an out-patient of St. Thomas's Hospital, for she refused to come into the house, and I prescribed for her a simple bitter infusion, as her appetite was failing. This, however, she refused to take; and I received a letter from her a few days afterwards, forbidding my visiting her any more. I mention this to account for my losing sight of the case until the 12th of April 1844, when her husband called on me to request that I would admit her into the hospital, which I did on the following Tuesday.

April 15th, 1844.—Present condition.—The disease has been progressing, though not very rapidly.

The countenance is rather more emaciated, and both maxillæ appear narrowed from side to side. The alveolar cavities of the superior incisor teeth are softened, allowing them to protrude forwards, and she is not able to bite with them. The right humerus has given way in the centre, and the arm lies perfectly useless on the bed. It cannot be moved without giving her great pain. The radius and ulna are not apparently altered, but the metacarpal bones and phalanges are quite soft. The whole hand is rather swollen and puffy, and its natural appearance changed.

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* See Plate VI. fig. 1.

The thorax is much narrower. On the left side there is a depression about the circumference of an orange, the centre of which is occupied by the fifth rib—about an inch and a half from its junction with its cartilage; in this depression the action of the heart can be distinctly seen and felt. Its sounds are natural. I think that the spine is rather more curved than when I saw it in October. I do not perceive any particular alteration in the lower extremities; though it is most probable that the right thigh bone has become more flexible, as, previous to her removal to the hospital, the foot was drawn completely over the head—the same position as represented in the case of Madame Supiot. She complains of the heat, and likes to have very little clothing, as much produces a sense of suffocation; she perspires very freely. I inquired of the sister whether she ever shows any particular desire for salt, as has occurred in similar cases; but I learn that she does not.

April 15th.—On her admission she was allowed wine and arrow-root, a mutton chop, and a pint of porter daily, and was also ordered the infusion of orange-peel, a rhubarb pill when necessary, and an opiate at night, if required.

20th.—On this day she died suddenly, without any circumstance having occurred during her stay in the hospital that I considered worthy of note, as illustrating the pathology of the case. I procured some of her urine, which was found, on examination, to contain a large quantity of phosphate of lime. Mr. Heisch, who examined it, says, " Between three and four times the quantity of healthy urine."

She was too suspicious and irritable to let me venture to take any blood, even in the smallest quantity, during her life. As, however, it was perfectly liquid after death, I had no trouble in procuring some for examination under the microscope; but it did not exhibit any unnatural appearance. Dr. Rees kindly analysed a portion of it; but he informs me he detected nothing abnormal. The immediate cause of her death appears to have been asphyxia. Mr. B. Travers saw her in her last moments, and he says, the labouring condition of the respiratory organs was very painful to witness. She took a little wine about twenty minutes past six, when the sister noticed some difficulty of breathing, and the patient stated she thought she was sinking; she then became purple, and struggled some little time before she expired.

April 21st.—*Post-mortem examination* 15 *hours after death.*—Thermometer 60° Fahr.—10 A.M.—General appearance of the body: great emaciation, integuments of the head and face and upper part of the neck, livid. As regards the state of the limbs, in addition to what has been reported during life, it was found that the radius and ulna on the right side had given way about the middle, and that the metacarpal bones and phalanges of the same hand were all flexible. On the left side, all the bones of the upper extremity appeared in their natural condition, inasmuch as their form was not altered; but on testing their strength, they yielded to a very slight force; and they might be bent in almost any direction, the laminated shell breaking off short. In the lower extremities the tibia and fibula of the left side yielded about two inches from the knee joint; below this point they were firm. Those on the right side resisted pressure; and though they were not so heavy or hard as in a healthy subject, the disease had evidently made very little, if any, progress in them.

Head.—Calvarium very soft; dura mater excessively adherent, and, when torn off, innumerable vessels poured forth their blood in large quantity. The under surface of the calvarium was more vascular than I scarcely ever remember to have seen it, and all the vessels were full of dark blood.

Some serous effusion within the cavity of the arachnoid.

The brain was healthy throughout; the hemispherical ganglion was natural in appearance, neither pale nor dark-coloured.

Thorax.—This cavity was so much diminished in its transverse lateral diameter, that a skewer passed from one side to the other, through the intercostal space between the fifth and sixth ribs, gave only four inches. On the right side there was a general depression of all the ribs; but on the left, the fourth, fifth and sixth ribs were especially bent inwards, immediately over the heart. It was in this hollow that the heart could be seen pulsating during life. The serous membranes of the heart and lungs were all healthy.

The right lung was compressed to about one-fourth of its natural size, presenting the appearance which it does when hydrothorax is present, for it was excessively congested, and almost impervious to air, very much consolidated, but not from any inflammatory effusion. The left lung was also diminished in size, but to not more than half the extent of the right; it was likewise much congested. The heart was natural, and full of blood.

Abdomen.—Intestines tympanitic, venous congestion of the liver; spleen, small and rather sanguine; pancreas, healthy.

The lacteals were distended with chyle, which presented the ordinary granular appearance of this fluid.

The thoracic duct was almost empty, the fluid which it contained consisted of granular matter similar to that of the lacteals, and also some chyle globules, which were of the usual character. Different parts of the sympathetic nerve were examined, but they presented nothing unusual in their appearance.

The left kidney contained a calculus of considerable size, which, on examination, was found to consist solely of phosphate of lime.

Female organs healthy.

Sections of the bones.—The bones of the skull were not thickened, they were very vascular and soft, though by no means so much so as in the first case; they contained, in small quantity, the same kind of red substance which was observed in the former case. Their sections exhibited a similar open, reticulated texture as that in the skull in the first patient.

A section of the radius exhibited very beautifully the progress of this disease; at both extremities there was merely an unnatural degree of vascularity, though the vessels forming it were not very red. The head of the bone was more injected than the lower end of it; at the lower part of the upper third, the cancellated structure had been partially absorbed, and its place occupied by the red grumous matter. So little of the earthy matter had been removed, that the bone retained nearly all its natural firmness.

Sections.—The *Sternum.*—Externally this bone did not seem much altered in firmness: it was not at all altered in form, but internally the disease had advanced rapidly; absorption of the earthy matter having taken place in patches, and the red substance occupied its place. The appearance it exhibited has been very beautifully represented by Mr. Kearney.*

Ribs.—It was evident from the external form of these bones, that they were extensively diseased;

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* See Plate VII.

only one was divided, which was interesting from its showing the disease in various stages of development.

Spine.—The same appearance in these bones as in the rest.

Thigh bones.—The right one alone was divided, and in this the disease had made such progress in the centre of it, that the whole of the osseous matter had been removed, and nothing but periosteum and membranous matter left; while at the upper part of the lower third of the bone the red matter was abundant, exhibiting various hues, from a deep Modena red to a bright scarlet crimson, the osseous laminated shell remaining, but almost as thin as a wafer; then towards the condyles a portion of the bone was nearly of its natural colour, only yellower and softer, from an abundance of fatty deposit. The extremity of the bone, to the extent of about one-third of an inch, was of a bright red colour, contrasting beautifully with the clear healthy colour of the cartilage.* This redness was evidently the effect of inflammatory injection of the vessels. I represented it at the time, and shall be happy to show the drawing to any one interested in the subject.

A section of the head, neck, and upper third, exhibited to a certain extent the same appearance as a corresponding section in the case of Caroline

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* See Plate VIII. fig. 2, *a*.

Stephens. There was, however, a difference of considerable interest in a pathological point of view, in illustration of the course of the disease.

The cells which contained the red matter were distinct throughout the section, but in some of them this matter had become entirely absorbed; a transparent serum occupied its place. The head of the bone was completely hollow, and filled with serum; there were two other smaller cavities at the lower portion of this part of the bone, filled in the same manner.*

The red matter I examined carefully under the microscope, with my friend Mr. Birkett, of Guy's, who has drawn up the following report of his observations:—

" From the cellular spaces of the cranial bones a soft reddish gelatinous solid could be removed. It mingled readily with water, rendering the fluid turbid. In it I could see cells with nuclei of two kinds; the first round, and clearly exhibiting a nucleus and nucleolus; they were, however, few in number, and certainly could not be said to compose the mass of the solid, which apparently contained a delicate fibre of fatty matter. The second kind were very clear, their edge being remarkably distinct, and the clear *oval* outline enclosing *one* bright *central* nucleus, *rarely two*, *never more*. There was a tendency to elongate into the caudate cells, but this appearance was very rare. Many other cells of irregular figure and shape, some with, others without, central nuclei, existed.

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* See Plate VIII. fig. 1.

"Large cavities existed in the body of the vertebræ, filled with a dull, oily reddish matter, and which contained a great number of cells, having an irregular outline, and some a very distinct nucleus, rendered more distinct by dilute acetic acid. I could find no distinctly caudate cell, as in the cranial bones; and the identity of these cells with pus globules (for they appeared larger than pus globules commonly are), or the commonly called nucleated cells of malignant disease, was difficult to determine: in the femur I saw nothing but fat cells and blood discs."

"The red coloured matter in the bones," says Mr. G. Rainey, of St. Thomas's Hospital, who also examined it, "consists of a multitude of roundish bodies, about the size of the blood corpuscles, each of the bodies being filled with a minutely granular substance. Besides these bodies, it contained also fat globules, but no regular fat vesicles, and it appeared to be wholly destitute of any fibrous or cellular structure."

Mr. Simon, of King's College, examined portions of the bones, and thus expressed himself in a note to me on this subject:—"My examination was not at all satisfactory as to the ultimate nature of the disease. There was great excess of the natural fatty matter, and disproportion of the medullary cells to the substance of the bone; in parts there was apparently extravasation of blood, which may have arisen from violence. I was unable to discover any new cell formation, at least any mature one; cytoblasts were exceedingly plentiful, so as to suggest the probability that some such formation was in progress, but nothing further, with the exception of some two or three apparently detached young fat cells. Decidedly there was no show of growing cartilage."

I find that mollities ossium is not confined to the human species; for I have learnt from Mr. Spooner, the professor of anatomy at the Veterinary College, that a year or two ago they had some hounds there belonging to Lord Middleton, the bones of whose skeletons were softened, the disease attacking one bone after another. No medicines seemed to have any effect in controlling the disease. A *post-mortem* examination of the bones exhibited the same morbid appearance I have described as occurring in the human subject—the deposit of the red matter, and great vascularity of the cancellated and laminated structure of the bone. Mr. Spooner was not able to discover any cause for the disease.

It would appear from the following facts, for which I am indebted to Mr. Hodgson, of Birmingham, that the disease is sometimes confined to a single bone. I give the case in Mr. Hodgson's own words:—" The patient was about thirty years of age; the leg was much bent, the integuments much thickened and ulcerated, causing so much annoyance and injury to the general health, that it was thought right to amputate the limb: no other bones were affected. The tibia and fibula appeared to be formed

of a very loose cancellated structure, the external or lamellated structure being extremely thin and friable. The cancellated structure was filled with a soft red material, resembling that which is found in fœtal bones. I remember another case in which it was supposed that the same disease existed in the femur, and not in any other bone, of a man about fifty years of age. It had been in this state many years, and after it became so, it had once been fractured with very little violence. The bone was very much thickened and bent; it did not appear to be a case of necrosis; an instrument was contrived for this patient, by which the weight of that side was transferred to the leg from the pelvis, so as to protect the femur from pressure, and with this contrivance the man was able to walk and follow his employment."

With regard to the causes of this disease, it appears to me that we are at present quite in the dark. Nor can it be pretended that the two cases now brought before the Society throw any light upon the subject. Mons. Kilian asserts that the most common exciting cause is violent cold, produced by getting wet through, especially during menstruation, or the presence of the lochia; he also enumerates sudden fright, grief, misery, and poverty. The most severe cases, he says, occurred in women confined in damp prisons. He considers that genuine *osteo malacia* is confined to females, and the cases on record of the disease in the male are only *similar*, not *identical*; he says it never appears earlier than puberty; is distinguished from rickets in its seat; its peculiar seat is in the bones of the pelvis; that it commences there, and spreads from that point. On the contrary, rickets commence in the bones of the head. He always found it begin with violent pains in the loins, and on the whole posterior surface of the pelvis. The pains are like those of rheumatism or gout; and although it is not a disease of infancy or childhood, neither is it confined to adolescence or the middle periods of life.

Mr. Curling has related a case occurring in a woman seventy-one years of age; and Otto, the famous pathologist of Breslau, states that there is a preparation of the disease in the Anatomical Museum of Bonn, the subject of which was eighty years of age at the time of her death.

Neither is it confined to the profligate or dissolute, for we find it occurring, as in both the cases just related, in females of irreproachable character, so that we cannot consider the poison of syphilis as an agent in its production.

Mons. Sailliant, in a case which he brought before the Faculty of Physic in Paris, in 1792, calls the disease Medullary Gout. Indeed, rheumatism has frequently been considered as giving rise to it, and there are more grounds for this supposition than perhaps any other hypothesis which has been advanced.

All the cases have been accompanied with severe pains in the limbs, and many of them preceded by severe rheumatic attacks.

I am, however, more inclined to the belief that though, in its acute stage, the symptoms which it exhibits are similar to rheumatism, that they are not the result of the same pathological condition. Meischer,* whose admirable work on healthy and diseased bones is well known, considers it established that the earthy parts of the bone after being absorbed, are excreted with the urine, in which they deposit a white sediment,—cretaceous—and soluble in acids. This, he thinks, is dependent on an acid diathesis, as exhibited in acid eructations, vomiting, and sweats, by which acid the neutral salts of the bone are commuted.

In many of the cases there would appear to be some connection between this disease and scurvy.

In the case related by Mr. Gooch and Dr. Pringle to the Royal Society in 1753, we read, "that the winter after the patient broke her leg, she had symptoms of scurvy, and bled much at the gums." In the case of Madame Supiot, the gums swelled much, and were separated from the teeth, allowing them to fall out.

In the case of Sarah Newbury, the last which came under my notice, there was no bleeding of the gums, but the teeth became loose in consequence of the softening of the maxillæ. I think it is not improbable, that what have been considered symptoms of scurvy, have arisen from the same cause. Mr. Thompson attributed mollities ossium to the venereal disease, and administered mercury for it, but without any benefit.

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* De Inflammatione ossium eorumque anatome generali. Frid. Meischer. Berolini. 1836. p. 79.

I feel that I should be trespassing too long on the valuable time of the Society, if I entered more fully into the opinions of others on this subject. I will therefore merely state that after a careful consideration of all the facts, but especially by comparing the appearances after death, with the symptoms during life of this awful disease, I am led to believe that it is of an inflammatory character. That it commences with a morbid action of the blood-vessels, which gives rise to that severe pain in the limbs, invariably attendant on this disease, but more especially in its commencement, and exhibits itself after death by an arterial redness of the part. The absorbent vessels are at the same time unnaturally excited, and the earthy matter of the bone is absorbed and thrown out by the kidneys in the urine, which excretion is sometimes so abundant, as we have seen in the last case, that it clogs up the calices and pelvis of the kidney, and forms there a solid calculus.

The important fact of the excretion of the phosphate of lime had not been previously established. Earthy deposits in the urine have been almost always observed in these cases, but their chemical character has never before been minutely stated. The place of the phosphate of lime in the bones is supplied by that morbid secretion of red grumous matter which has been so universally found in this disease, and which was so abundant in both the cases just related. The microscopic examination of this matter, showing cell development in its various stages, confirms my impression that it is an adventitious morbid product, and not simply the fatty matter of the bone altered by the effusion of blood into it.

I think that the enormous hypertrophy of the bones of the skull in the first case I have related, as also in that of Madame Supiot, demonstrates that it is an active disease, and not a mere atrophy. Indeed, the inordinate vascularity of the bones of the skull, though unaccompanied by increase of thickness, in the second case, proves nearly as much; and I have no doubt, if this patient had not died so suddenly, but had survived another twelve months, that a similar thickening of the skull would have taken place. It is interesting, in relation to the pathology of the brain, to observe the effect of this disease of its solid covering in the person of Stephens. I allude to the derangement of intellect. Whereas in the latter instance the mind remained perfect to the last, where the skull was not altered in its dimensions.

In these cases, as in all others which are minutely recorded, the patient suffers when the disease is in an incipient stage, not merely from severe pains in the limbs, but also from general want of power; and this debility is not the consequence of the bones having given way, and therefore being no longer physically capable of performing their office, as levers for locomotion, but we must regard it as one of those beautiful instances of that warning sympathy which takes place between organs anatomically distinct, but physiologically united. Disease has invaded the bones, their structure is becoming gradually altered, but long before the solid matter has been removed, the muscles tremble in the performance of their duty, and the patient feels that his limbs are becoming weak and powerless, and is afraid to walk, lest he should fall and injure himself.

In reference to the treatment of this awful malady, I have very little, from personal experience, to offer to the notice of the Society, as in the first case the patient was never under my care—and in the last, only for a few days immediately preceding her death. The most interesting and complete case as regards treatment of the disease during life, is detailed by Mr. Howship, in the second volume of the Edinburgh Medico-Chirurgical Transactions for 1826. In this, the disease lasted nearly six years, but during its progress the patient was so much benefitted by sea air and sea bathing, that Mr. Howship says—" I feel convinced that had the patient remained twelve or eighteen months at the sea side, she would have returned home perfectly cured." Mons. Kilian states that he has never succeeded in curing the disease, but he has seen cases recover when the patients have been removed to dry dwellings, and have had good nourishing food. From these details I should not hesitate to pursue, if it were possible, a similar plan of treatment.

CASE OF
FISTULOUS COMMUNICATION
BETWEEN THE
INTESTINUM ILEUM, AND URINARY BLADDER,
SIMULATING STONE IN THE BLADDER.

By W. C. WORTHINGTON, F.R.C.S.,
SURGEON TO THE LOWESTOFT INFIRMARY.

READ JUNE 25TH, 1844.

FOR the early history of this case, I am indebted to Mr. Smith, who was the patient's regular professional attendant.

Mary Fletcher, æt. sixty-five, of spare habit of body, and endowed with considerable nervous irritability, had, during the greater part of her life, enjoyed what may be termed very fair health. Four years ago she first placed herself under the care of Mr. S. At that period she suffered from an obscure abdominal affection, and the medical treatment consisted principally of a mild mercurial course. The result of this was, a gradual improvement of health, but not complete restoration. The abdominal pain, although mitigated, ceased not in some degree to trouble her, and the uneasiness was more distinctly referable to the right side, somewhat lower than the umbilicus. She continued to linger on in this state until about the month of November 1842, when symptoms of a much more distressing nature began to be developed, indicative of disturbance of the urinary organs. These gradually increased, whilst her health continued to give way. A strong suspicion was entertained that they were caused by a calculus in the bladder. With a view of ascertaining this fact, her medical attendant frequently importuned her to submit to an examination, but so great was her apprehension of pain, that his importunities always proved fruitless, and his only resource was, to fall back upon opiates; the administration of which seldom failed of affording temporary relief. In the month of February last, Mr. S. requested me to visit the patient. At this time she described her sufferings as being very intense, and greatly exceeding any thing she had previously endured; her emaciated appearance and distressed expression of countenance forcibly corroborated her statement. The leading symptoms were now, frequent and painful micturition, urine bloody, ropy, highly offensive, and when voided was observed occasionally to deposit fragments of extraneous matter, the exact nature of which was not ascertained. After much entreaty, she permitted me to introduce a female catheter into the bladder; the operation, although conducted with great care, was productive of exquisite pain. A grating sound was imparted to the point of the instrument, such as is sometimes felt on the introduction of a sound into the bladder of a patient suffering from an enlarged prostrate. No calculus could be detected, and it was concluded that the mucous surface of the bladder had probably become the seat of some malignant ulcerative process, and that the only rational plan of treatment to be adopted, was, to support the general health, and continue to combat the pain by the occasional use of anodynes. She continued thus for a period of three weeks, when an attack of diarrhœa supervened, under which she sunk.

Autopsy, sixty hours after death.—The abdominal cavity being laid open, and its parietes reflected, the first thing that attracted observation was a preternatural adhesion between one of the convolutions of the bowels, and some one of the pelvic viscera, the peritoneum apparently forming the bond of union. At the time of the inspection, it was not convenient to attempt anything like an accurate demonstration of the morbid appearances. The whole of the diseased mass was therefore carefully removed, in order that this might be accomplished with minuteness and deliberation. On a subsequent examination the following morbid appearances presented themselves. The ileum proved to be the seat of a disease which seemed to have originated in stricture.

Induration, thickening and ulceration of its mucous surface, were gradually the consequence, which ultimately terminated in perforation of its remaining coats. A further result was in all probability a deposition of lymph, which had the effect of establishing an adventitious union between the posterior part of the bladder and the convolution of the bowel. On slitting up the bladder, commencing at the meatus urinarius, its cavity was found to be partly filled with fæculent matter, and also to contain portions of what appeared to be undigested food, such as currants, seeds, and other vegetable matter. At its fundus was discovered an opening evidently the result of ulceration, sufficiently large to admit the point of the index finger, and which communicated freely with the adhering bowel. Through this opening the excrementitious matter readily passed. The cavity of the bladder was contracted, and the mucous surface much congested, presenting at its posterior part, patches of ulceration. It may be here observed, that, as the ulcerative process advanced, and the coats of the intestine became perforated, a portion of its contents must necessarily have passed into the general cavity of the abdomen, causing inflammation and speedy death; an effect, however, obviated in this case by its communication with the neighbouring viscus, and which proved the means of protracting life, although in a very uncomfortable state.

Fistulous communications between the rectum and bladder in the male, and the vagina in the female, are not rare. A case is recorded by Dr. Baillie, where a communication had formed between the kidney and a portion of the intestine, by which the pus produced in the kidney was evacuated through the intestine. I am not aware, however, of any case where the ll intestine had adhered to the urinary bladder, nd a fistulous opening been established between the latter viscus being in part converted a fæcal reservoir, excepting one about to be d to.

Although the ulceration and ultimate perforation of the ileum seemed to have originated in stricture of the ulcerated part, it is not improbable that the ulceration had given rise to the thickening and induration observed in that part, as well as to the effusion of lymph on the serous surface of it, whereby it had adhered to the bladder. M. Louis, in an interesting memoir (*Archives Générales de Médecine*, T. i. p. 17), has detailed several cases in which perforations consequent upon ulceration occurred in the lower portion of the ileum, the contents of the bowel being effused in the peritoneal cavity in most of them, owing to the absence of adhesions between the perforated part and the adjoining viscera. My friend, Dr. Copland, in an elaborate treatise on the lesions observed in the digestive canal (*Dictionary of Pract. Medicine*, vol. i. p. 547), states, that, "in other cases, the gastro-intestinal contents do not pass into the peritoneal cavity, owing to the circumstance of the peritoneum having, previously to its perforation, become inflamed, so as to throw out coagulable lymph on its surface, which excites inflammatory irritation in that part of it directly opposite, and thereby forms adhesions, and shuts the opening." And further on he adds—" When the viscus, which becomes accreted to the surface of the perforated portion of the intestine, has itself a cavity, then a communication generally takes place between them: thus Camper (*Mém. sur le Prix*, &c. T. v. art. 9) met with an opening into the bladder."

OBSERVATIONS

ON THE

RECORDED CASES

OF

OPERATIONS FOR THE EXTRACTION OF OVARIAN TUMOURS.

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READ JUNE [redacted]1, 1844.

The attention of the profession, as well as of the public, has been so strongly directed to the question which it is now proposed to consider, that it has become necessary, calmly and dispassionately, to review the results hitherto attained by the performance of the operation; and in order to afford some aid in coming to a right judgment, whether the extraction of ovarian tumours shall be classed amongst the benefits conferred by science upon man, I shall now bring before the Society all the information on the subject which I have been enabled to collect.

The opinion of any man, however eminent, pronounced without a careful estimate of the materials, which have now become available to us, cannot, and ought not, to determine the question; and the only means we have for arriving at a correct judgment, are, so far as I know, those furnished by the cases which will be hereafter described.

It is possible that the cases on record do not furnish us with the means of forming a correct estimate of the risk attendant upon the operation; it is possible that while breathless haste has been shown to chronicle successful cases, culpable tardiness has been exhibited in bringing to light those which have been unsuccessful; indeed, I shall use, in forming my tables, several cases, with which I am acquainted, which are not recorded, and which were nearly all unsuccessful. Still those cases constitute the best means we possess for determining upon the value of the operation. If the results which they present shall be deemed on the whole favourable, notwithstanding the magnitude and apparent danger of the operation, no authority, however weighty, can arrest the conclusions of actual experience. Whilst, if the cases we possess are sufficiently numerous, and the circumstances they present are sufficiently varied, to furnish materials for our judgment, and the results they exhibit shall induce the conclusion, that the benefits we might reasonably expect to obtain are unequal to the certain risks we incur, no prudent or safe practitioner will persevere in the operation.

And should the reasonable deduction from the past be this, that we require further data before we can pronounce a positive opinion on these questions, the information I have collected may, at least, moderate exaggerated expectations on the one hand, and exaggerated fears on the other.

It has been the fate of some grave and dangerous operations, to be received into favour and admitted into practice from the moment they were proposed; and of others, less grave and dangerous, to be assailed by great prejudice; whilst those who have desired to afford them a [illegible] trial have been exposed to censure and contumely; i[illegible]ither case the results of the operation bei[illegible]ded.

In 1818, Mott [illegible]ced a ligature around the arteria innominata, and the op[illegible]ration was unsuccessful; and yet formidable as is the operation, and unvaried the failures in every [illegible]nstance, though performed by the ablest surgeons, it has been repeated twelve times, and still I have no doubt that men of the greatest eminence and most unquestionable skill would nevertheless resort to an operation the almost certain result of which would be death. The extraction of an ovarian tumour is much more simple, much less grave, than the ligature of the innominata, and yet by a large portion of the profession, and by some of the most celebrated of its members, it has been denounced as rash and imprudent. With a few exceptions it has not been performed by the more experienced and able surgeons either in this country or on the continent; it has fallen into the hands of men less accustomed to perform great operations, and it may be not unreasonably assumed less conversant with the after treatment which may be needful. Although performed many times in London, I believe it has been introduced into no other Hospital than Guy's, and even were its performance more frequently called for, and its success more decided, it would hardly be classed amongst the recognised operations of surgery until warranted by the experience of Hospital practice.

Extirpation of ovarian cysts, though frequently recommended during the last century as a remedy in extreme cases, seems not to have been actually practised before the year 1809. Before that time diseased ovaries had been extirpated when protruded in hernial tumours, by Pott and other surgeons; but it is only within the last few years that the operation of extraction has attracted much attention.

The following Tables exhibit the cases in which, so far as I know, the operation has been performed, and the results; and it is upon them that our decision as to the propriety or impropriety of this plan of treating ovarian tumours must at the present moment be based.

GENERAL LIST OF CASES.

Operator.	Age.	Operation.	State of Tumour.	Result.	Remarks.
Macdowall .	. . .	Large incision .	No adhesions .	[illegible]	Tumour mostly solid; weight, 6 lbs.
,, .	. . .	Ditto	Ditto . . .	[illegible]	Tumour was tapped before extraction; 15 lbs. evacuated.
,, .	. . .	Ditto	Adhesions . .	[illegible]ered	Both ovaries large and adherent; punctured, but not r[illegible]d.
,, .	. . .	Ditto	. . .	[illegible]	[illegible]
N. Smith . .	33	Small incision .	Small adhesions	[illegible]	[illegible]nd 8 pints removed before
Lizars . .	27	Large incision .	. . .	[illegible]	[illegible]d.
,, .	36	Ditto	No adhesions	[illegible]	[illegible]r.
,, .	25	Ditto	Strongly adhere	[illegible]	[illegible].
,, .	34	Ditto	. . .	[illegible]	[illegible]r, punctured; blood escaped.
Dohlhoff . .	23	Small incision .	No adhesions	[illegible]	[illegible]re [illegible]scites, 46¼ lbs.
,, .	27	Large incision .	Strong adhesions	Death . .	Tumour not extracted.
,, .	23	Incision 5 inches	. . . .	Recovered	No tumour found.
Granville .	. . .	,, 6½ ,, .	Strong adhesions	Ditto . .	Tumour not removed.
Ehrhartstein.	36	Large incision .	No adhesions .	Cure . .	Tumour tapped before extraction, 26 lbs.; solid, 12 lbs.
Galenzowsky	27	Five inches . .	Adhesions . .	Recovered	Tumour not removed; cut into, and tent introduced.
Dieffenbach.	40	Large incision .	. . . .	Ditto . .	Tumour punctured, blood flowed; not removed.
Hopfer . .	47	Ditto	Adherent . .	Death . .	Ascites, also.
,, .	38	Ditto	Ditto . . .	Cure .	Malignant tumour, weighing 7 lbs.
Chrysmer .	38	Ditto	Adhesions . .	Death . .	Ascites and tumour.
,, .	47	Ditto	Large adhesions .	Death . .	Cartilaginous and lardaceous tumour.
Martini . .	24	Ditto	Adhesions .	Death . .	Several times tapped and injected; not removed.

Macdonald	. . .	Large incision	No adhesion	Cure	Tumour, 22½ lbs.
Chrissmann	. . .	Ditto	Ditto	Cure	Tumour, 8 lbs.
Jeaffreson	40	Small	Ditto	Cure	Twelve pints evacuated.
King	37	,,	Ditto	Cure	Twenty-seven pints ditto.
,,	. . .	,,		Recovered	Omental tumour; no extraction.
,,	40	7 or 8 inches		Ditto	No tumour.
West	45	Small incision		Cure	Twenty pints evacuated.
,,	23	Ditto		Cure	Twenty-four pints ditto.
,,	40	Ditto	Adhesions	Recovered	Not removed.
,,	24	Ditto		Death	Eleven gallons removed.
Alban Smith	30	Medium		Cure	Tumour tapped before extraction.
Groth	. . .	Ditto		Death	Portion of fluid removed before extraction.
Stilling	22	6 inches	No adhesions	Death	Hæmorrhage.
Phillips	23	2½ inches	Ditto	Death	Three hundred and thirty ounces.
Clay	46	Large	Slight adhesions	Cure	Ascites, 7 pints; tumour, 17¼ lbs.
,,	57	,,	Many adhesions	Cure	Tumour, 5 lbs.
,,	39	,,	Large adhesions	Cure	Tapped 5 days before operation.
,,	47	,,	Universal adhesion	Death	Operation not completed.
,,	45	,,	Large adhesions	Death	Hæmorrhage
,,	40	Large incision	Strong adhesions	Death	Hæmorrhage; tumour, 26 lbs.
,,	22	,, ,,	Adhesions	Cure	Tumour, 26 lbs.
,,	40	,, ,,	No adhesions	Death	
,,	43	,, ,,	Large adhesions	Cure	Tumour, 31 lbs.
,,	59	,, ,,	Ditto	Death	,, 54 lls.
,,	45	,, ,,		Cure	Hydatid cyst, 16 lbs.
,,	58	,, ,,		Death	Tumour, 24 lbs.
,,	. . .	,, ,,	Large adhesions	Cure	,, 28 lbs.
,,	49	Ditto		Death	Uterine tumour; uterus, except cervix and ovaries, removed.

Operator.	Age.	Operation.	State of Tumour.	Result.	Remarks.
Walne . .	58	Large incision .	No adhesions .	Cure . .	Tumour, 16 lbs., nearly all fluid.
,, . . .	57	Ditto	Ditto . .	Cure . .	,, 16¼ lbs.
,, . . .	20	Ditto	Ditto . .	Cure . .	,, 28 lbs.
,, . . .	54	Ditto	Adhesions . .	Recovered	,, not extracted.
,, . . .	45	Ditto	No adhesions .	Death . .	,, 14 lbs.; ascites.
Southam .	37	Ditto	Adhesions . .	Cure . .	,, and ascites.
Key . .	19	Ditto	No adhesions .	Death . .	,, 24 lbs.
Brans.Cooper	32	Ditto	Few adhesions .	Death . .	,, 32 lbs.
Greenhow .	29	Ditto	Adhesions . .	Death . .	,, solid, 12 lbs.
Rogers . .	20	Ditto	Ditto . .	Cure . .	,, and ascites.
Bird . . .	35	Small incision .	No adhesions .	Cure . .	,, contained three gallons.
,, . . .	20	Ditto	Ditto . .	Cure . .	,, contained a bucket full.
,, . . .	35	Medium . . .	Considerable ditto	Cure . .	gelatinous, 36 lbs.
,, . . .	20	Small	No adhesions .	[illegible]	contained a bucket full.
,, . . .	. . .	Ditto	Large adhesions .	Recovered	Incomplete extraction.
Lane . . .	. . .	Incision 8 inches	Ditto . .	Cure . .	Tumour tapped a few days before.
,, . . .	44	,, 7 ,,	Adhesions . .	Cure . .	Part of tumour solid.
,, . . .	. . .	,, . .	Ditto . .	Cure	
Morgan . .	. . .	Small incision .	. . . .	Death . .	Tumour not extracted.
Heath . .	46	Large incision .	. . . .	Death . .	Fibrous tumour of uterus.
Froriep . .	48	Ditto	Adhesions . .	Death . .	Part of sac removed.
A. B. . .	. . .	Ditto	Ditto . .	Death . .	Not proceeded with.
C. D. . .	22	Small incision .	. . . .	Recovered	No tumour.
E. F. . .	. . .	Large incision .	Adhesions . .	Death . .	

Operator.	Age.	Operation.	State of Tumour.	Result.	Remarks.
Ritter . .	31	Large incision .	No adhesions	Cure .	Ascites, 26 lbs.; tumour, 12 lbs.
Quittenbaum	. .	Ditto . . .	. . . . .	Cure.	
Atlee . .	25	Ditto . . .	Adhesions	Cure .	Tumours of both ovaries extracted.
Warren .	40	. . . . . .	No adhesions	Death .	Tumour, 25 lbs.
Hargraves	40	Incision 2 inches	. . . . .	Death .	„ 25 lbs.
Granville .	30 & 40	Nine inches .	. . . . .	„ .	„ 8 lbs.
A. B. .	. .	Large incision .	. . . . .	„	
Case in Gooch	. .	Six inches . .	. . . . .	Recovered	No tumour found.

Besides those cases there are two alluded to in the American edition of Gooch's Study of Medicine, but the account is too meagre to admit of our using them.

I have heard particulars of other five cases, of which at least three were unsuccessful, but I cannot venture to use them. As every honourable man should be equally ready to publish his unsuccessful as well as his successful cases, we may look for the authentic particulars hereafter.

The preceding Tables exhibit the results of eighty-one operations, performed for the purpose of extracting ovarian tumours. In sixty-one cases, the tumour was extracted; in fifteen cases, adhesions, or other circumstances, prevented its removal; in five instances no tumour was found. Of the cases w the operation was completed, the tumour extracted, thirty-five terminated favourably; ient recovered: in twenty-six instances the ination was unfavourable; the patient died. Of ive cases in which no tumour was discovered, red.

teen cases in which adhesions, or other nstances, prevented the extraction of the tumour, nine recovered, six died.

e proper way, therefore, f looking at this eatment, is to obs he number of cases to operation, and the number of recothe removal of the mour. I conceive to be the fair way, because what has happened is, in my judgment, y to happen again. sions may be too stro extensive to make removal prudent; the tumour may be other than ovarian, or it may be that no tumour can be found. Regarded in this light, it appears that the operation has been performed eighty-one times, and that in thirty-five instances the patient has recovered after the extirpation of the tumour. It is true, that forty-nine patients survived gastrotomy; but many of them were subjected to such a painful and dangerous operation, on the one hand without necessity, and on the other without being disembarrassed of the disease.

Two different plans have been followed in the operation, and it is proper for us to ascertain whether there has been a corresponding difference in the results. In the one plan, the incision of the abdominal parietes is sufficiently extensive to admit of the removal of the tumour entire,—often extending from the ensiform cartilage to the pubis. In the other plan, the incision has had the extent necessary for the removal of so much of the tumour as would not pass out through a puncture or incision made in it before extraction was attempted. If the tumour contains little or no solid matter, a puncture may cause the complete evacuation of the contents, and the cyst may be removed through a very small opening. In Mr. Jeaffreson's case, the opening into the abdomen did not much exceed an inch; in my own case, it was little more than two inches. I think the evacuation before extraction, and not the exact length of the incision, the important distinction between the two operations.

The cases in which the principle of extracting the tumour entire has been followed, the incision having an extent of six inches, or upwards, appear to amount to fifty-five; the instances of successful removal to twenty-three. The following list contains the particulars of them.

CASES IN WHICH A LARGE INCISION WAS EMPLOYED.

Operator.	Age.	Operation.	Result.	Remarks.
n .	. . .	No adhesions .	Cure . .	Tumour mostly solid; weight 6 lbs.
.	. . .	Ditto	Ditto . .	Tumour was tapped before extraction; 15 lbs. evacuated.
.	. . .	Adhesions . .	Recovered	Both ovaries large and adherent; not removed.
.	. . .	. . . .	Death . .	
. .	27	. . . .	Recovered	No tumour found.
„ . .	36	No adhesions . .	Cure . .	Ovarian tumour and ascites.
„ . .	25	Strong adhesions.	Death . .	Tumour weighed; 7 lbs.
. .	34	. . . .	Recovered	Omental tumour not removed.
	27	Strong adhesions.	ath . .	Tumour not extracted.
	„	Ditto	covered	„ not removed.
	36	No adhesions . .	Cu . .	„ tapped before extraction; 26 lbs. solid, 12 lbs. fluid.
	40	. . . .	Recovered	Tumour punctured, not removed.
pfer . .	47	Adhesions . .	Death . .	Ascites and ovarian tumour.
„ . . .	38	Ditto	Cure . .	Malignant tumour, weighing 7 lbs.
Chryssmer .	38	Ditto	Death . .	Ascites and tumour.
„ .	47	Large adhesions .	Death . .	Cartilaginous and lardaceous tumour.
Martini . .	24	Adhesions . .	Death . .	Several times tapped and injected; not removed.
Macdonald .	. . .	No adhesions . .	Cure .	Tumour weighed 22¼ lbs.
Chrissmann .	. . .	Ditto	Cure	„ „ 8 lbs.
Stilling . .	. . .	Ditto	Death . .	
Clay . .	46	Slight adhesions .	Cure . .	Ascites, fluid 7 pints; tumour, 17¼ lbs.
„ . . .	57	Many adhesions .	Cure . .	Tumour, 5 lbs.
„ . . .	39	Large adhesions .	Cure . .	Tapped five days before operation.
„ . . .	40	Ditto	Death . .	Hæmorrhage.
„ . . .	22	Adhesions . .	Cure . .	Tumour, 26 lbs.
„ . . .	40	No adhesions . .	Death	
„ . . .	47	Large adhesions .	Death . .	Operation not completed
„ . . .	43	Ditto	Cure . .	Tumour, 31 lbs.
„ . . .	45	Ditto	Death . .	Hæmorrhage.
„ . . .	59	Ditto	Death . .	Tumour, 54 lbs.
„ . . .	45	Ditto	Cure . .	Hydatid tumour, 16 lbs.
„ . . .	58	Ditto	Death . .	„ „ 24 „
„ . . .	. . .	Ditto	Cure . .	„ „ 26 „

Operator.	Age.	Operation.	Result.	Remarks.
Clay . . .	49	Large adhesions .	Death . .	Uterine tumour; uterus, except cervix and ovaries, removed.
Walne . .	58	No adhesions . .	Cure . .	Tumour, 16 lbs., nearly all fluid.
,, . . .	57	. . . .	Cure . .	,, 16¾ lbs.
,, . . .	20	. . . .	Cure . .	,, 28 ,,
,, . . .	54	Adhesions . . .	Recovered	,, not extracted.
,, . . .	45	No adhesions . .	Death . .	Ascites, and tumour of 14 lbs. weight.
Southam . .	37	Adhesions . . .	Cure . .	Tumour and ascites.
Key . . .	19	No adhesions . .	Death . .	Tumour, 24 lbs.
Brans. Cooper	32	Few adhesions .	Death . .	,, 32 lbs.
Greenhow .	29	Adhesions . . .	Death . .	,, solid, 12 lbs.
Rogers . .	20	Ditto	Cure . .	,, and ascites.
Heath . .	46	. . . .	Death . .	Fibrous tumour of uterus
Froriep . .	48	Adhesions . . .	Death . .	Part of sac removed.
A. B.	. . .	Ditto	Death . .	Not proceeded with.
E. F.	. . .	Ditto	Death . .	
Ritter . . .	31	No adhesions . .	Cure . .	Tumour, 12 lbs.; ascites 26 lbs.
Quittenbaum	. . .	. . . .	Cure . .	
Atlee . . .	25	Adhesions . . .	Cure . .	Tumours of both ovaries removed.
Warren . .	40	No adhesions . .	Death . .	Tumour, 25 lbs.
Granville . .	30—40	. . . .	Death . .	,, 8 lbs.
G. H.	. . .	. . . .	Death . .	
Morris . .	. . .	. . . .	Cure . .	

Operations, 55.—Deaths, 26.—Cures, 23.—Recoveries, 6.

The cases in which the plan of procuring the evacuation of as much as was practicable of the contents of the tumour, before the extraction was attempted, amount to twenty-seven; the instances of success after removal to thirteen; the length of the incision was variable, but usually under six inches; they are enumerated hereafter.

CASES IN WHICH A SMALL INCISION WAS EMPLOYED.

Operator.	Age.	Operation.	Result.	Remarks.
[illegible] .	33	Small adhesions .	Cure . .	Tumour punctured before extraction, 8 pints escaped.
.	23	No adhesions .	Death . .	Tumour punctured; ascites, 46½ lbs.
. .	23	. . . . .	Recovered	No tumour found.
sky	27	Adhesions . .	Ditto .	Tumour not removed; cut into, and tent introduced.
n .	40	No adhesions .	Cure . .	Twelve pints evacuated.
	37	. . . . .	Cure . .	Twenty-seven pints ditto
„	. . .	. . . . .	Recovered	Omental tumour not extracted.
.	40	. . . . .	Ditto .	No tumour.
	45	. . . . .	e . .	Twenty pints evacuated.
	23	. . . . .	e . .	Twenty-four pints ditto
.	40	Adhesions . .	covered	Not removed
.	24	. . . . .	ath .	Eleven gallons removed.
[illegible] .	30	. . . . .	Cure . .	Tumour tapped before extraction.
oth . . .	. . .	. . . . .	Death .	Portion of fluid removed before extraction.
Phillips . .	23	No adhesions .	Death .	330 ounces of fluid evacuated.
Bird . . .	35	Ditto . .	Cure . .	Tumour contained three gallons.
. . .	20	Ditto . .	Cure . .	Tumour contained a bucket full.
„ . . .	35	Many adhesions .	Cure . .	Tumour gelatinous, weighing 36 lbs.
„ . . .	20	No adhesions .	Cure . .	Tumour contained a bucket full.
„ . . .	. . .	Adhesions . .	. .	Mixed tumour, extraction complete.
Lane . . .	. . .	. . . . .	Cure . .	Tumour tapped a few days before.
„ . . .	44	Adhesions . .	Cure . .	Part of tumour solid.
„ . . .	. . .	Ditto . .	Cure	
Morgan . .	. . .	. . . . .	Death .	Tumour not extracted.
C. D. . . .	22	. . . . .	Recovered	No tumour.
Hargraves .	40	. . . . .	Death .	Tumour, 25 lbs.
Case in Gooch.	. . .	. . . . .	Recovered	No tumour found.

Operations, 27.—Deaths, 7.—Cures, 13.—Recoveries, 7.

Those different tables contain, so far as I know, the recorded cases in which an attempt was made to extract ovarian tumours, with their results.

Many interesting points for inquiry arise in the consideration of the cases already given; some of them we are in a condition to discuss, others must be left untouched, because the materials we possess for the purpose are too meagre. I shall confine myself to the following points, because they are, at the same time, of most practical importance, and of most easy solution.

First.—Can we determine, with certainty, whether a tumour be ovarian or not? If not, have the failures been so frequent as to constitute a reason why the operation should not be attempted?

Second.—Supposing a tumour to exist, and to be ovarian, can we ascertain the nature of its contents, as well as its connections? If not, have the failures been so many as to be an objection to the adoption of the operation at all?

Third.—Are the results of this plan of treatment sufficiently favourable to justify us in preferring extirpation to any other mode of treating ovarian tumours? And if so, what plan of operation promises most success?

It is not so easy as some persons imagine, to determine whether a tumour be ovarian or not. The state of menstruation, the condition of the mammæ, the features of the tumour, the age of the patient, have nothing certain about them, with reference to such tumours. Menstruation may be regular or irregular, the mammæ may be flaccid, or tumid, the tumour, of itself, may give us no assistance; then, as to age, the tumour may be congenital (Meyer), —may be developed after fifty.

Assistance may be obtained from percussion, but the nature of the contents of the tumour may lessen the value of the information thus acquired; it may, however, do much to enable us to distinguish between ascites and an ovarian cyst, between a solid and fluid tumour. Auscultation may be found useful where there is a doubt of pregnancy; and yet, not long ago, Bricheteau related a case, in his Clinique, at the Hôpital Necker, where ovarian pregnancy was suspected, and the signs were deemed sufficient to justify an operation, but no trace of pregnancy was discovered, and the patient died on the sixth day. A proof of the uncertainty of the signs of ovarian tumour is furnished by the fact, that out of the eighty-one instances in which the operation for extirpation was attempted, five times, at least, the abdomen has been laid open, and no tumour discovered—and in six others the tumour was not ovarian.

NO TUMOUR FOUND.

Operator.	Age.	Operation.	Result.
Lizars	27	Large incision	Recovered.
Dohlhoff	23	Five inches	„
King	40	Seven or eight inches	„
A. B. (Gooch)	24	Six inches	„
C. D.	22	Small incision	„

Now, if this has happened during the time the operation is on its trial, when, it may be fairly presumed, that more than ordinary care is likely to be bestowed in the diagnosis, we are forced to the conclusion, that we do not possess the means of determining, with certainty, whether a supposed tumour be an ovarian cyst or not.

At the same time, I do not admit that the chances of error should be so large as is represented by the preceding tables. If I could believe that, in spite of every care in diagnosis, it was probable, that in one case out of every sixteen, the abdomen would be laid open, and no ovarian tumour found, it would constitute, in my mind, a very strong objection to the performance of the operation at all; still, it must be admitted, that in neither instance was this mistake fatal to the patient.

Hysterical or other tympanitis, or tumours of the omentum, have been the sources of error in the cases to which I have referred.

With reference to the second point for inquiry, we have no certain means of ascertaining the contents and connections of tumours presumed to be ovarian. In six instances, the abdomen has been laid open, and the tumour has been found to be either diseased omentum, or diseased or gravid uterus. Many times a presumed ovarian cyst has been punctured, and no fluid has escaped; the operation has been a "dry tapping." I have been present when an operation has been performed for the extraction of the cyst, where, although the examination was made by men of tried ability, who had no doubt of the contents being fluid, yet not a drop of fluid was contained in it—it was a stiff jelly.

With reference to connections or adhesions, the difficulties met with are still more formidable. In fifteen cases where the operation for extraction was commenced, it was found necessary to discontinue it, in consequence of the extent of the adhesions. In twenty-five other instances adhesions existed. Of the fifteen cases in which they caused the abandonment of the operation, six terminated fatally.

No Extraction.

Operator.	Age.	Operation.	State of Tumour.	Result.	Remarks.
Granville		Incision 6½ inch.	Strong adhesions —wound closed.	Recovered	
Galenzowsky	27	„ 5 „	Adhesions . .	Ditto . .	Tumour cut into; 3 lbs. escaped; tent introduced; broken down by 70th day.
Dieffenbach	40	3 inches above umbilicus to within 4 inches of pubis.	Large base . .	Ditto . .	Tumour punctured; blood flowed.
Martini	24	9 inches . . .	Adherent to rectum.	Death . .	Several times tapped and injected.
Dohlhoff	27	2 inches above umbilicus to pubis.	Large adhesions	Death	
Lejars	34	Sternum to pubis	. . . . .	Recovered	Tumour of omentum and ovary; tumour punctured; blood escaped.
Walne	54	Large incision	Adhesions . .	Ditto	
King	. .	. . . . . .	. . . . . .	Ditto . .	Omental tumour.
Clay	47	Large incision	Adhesions . .	Death . .	Tumour tapped; 2 pints of bloody fluid escaped.
West	40	Small incision	Ditto . . .	Recovered	
Morgan	. .	Ditto . . .	. . . . . .	Death	
Froriep	48	Large incision	Adhesions . .	Death . .	Part of sac removed.
Macdowell	. .	Ditto . . .	Ditto. . . .	Recovered	Both ovaries enlarged; tumour punctured.
A. B.	. .	. . . . . .	. . . . . .	Death . .	Not proceeded with.
Bird	. .	. . . . . .	Adhesions . .	Recovered	Part solid.

This seems to me to be the pinching point of the case. I would admit, that a very careful and competent observer would not be likely to fail often, in his conclusions as to the existence or non-existence of a tumour, and as to its being ovarian or not; I would admit that he would not often fail in the determination of the contents, but I know no sure means of ascertaining whether there be extensive adhesions or not: in most cases, there are no physical signs by which we can determine this. It is not certain that we can, in ordinary cases, cause the abdominal parietes to glide over the surface of the tumour; in many cases, persons are deceived by the gliding of the superficial upon the deeper-seated layer of the abdominal walls, and if we could, it would only avail for its anterior surface. The crepitating sign pointed out by Dr. Bright is only present when the adhesions are recent; and as to the motion of the tumour with the diaphragm, considerable adhesions may exist without much interfering with it. An examination per vaginam would not set the question at rest. Our main reliance is therefore upon the signs of peritonitis—if the evidence be clear that peritoneal inflammation has existed, it is probable that adhesions are present; but we may find adhesions where there has been no reason to suspect peritonitis. Still extensive adhesions in the absence of symptoms of peritonitis are by no means common. It is then mainly upon this point that we must rely before proceeding to operation. I do not mean to say that it should determine the question, but if the results are not such as to enable us to regard the operation with much confidence, that fact must have weight.

It is however true that if we compare the results of the whole cases with the results of the 40, in which adhesions were found, the result is not what might have been anticipated. Forty-seven of the eighty-one survived the operation, which is at the rate of fifty-eight per cent. Twenty-six of the forty survived, or sixty per cent.

It would seem then, judging from the materials before us, that the existence of adhesions does not lessen the chances of success, nor so far complicate it as to constitute a bar to its performance, if it be admitted to be a proper operation where no adhesions are present.

There remains for us to consider whether the results on record justify us in preferring extraction to any other plan of treatment, in cases of ovarian tumour. We assume that our diagnosis is correct, and that the case is one of ovarian cyst. The tumour is large, the inconvenience is great, and the necessity for relief urgent.

We know that the operation for extraction is one of a very serious nature, but have we any other means of cure to propose? Diuretics, purgatives, mercurials, compression, have been tried, and they have failed. We may advise the patient to try to bear her sufferings, and may tell her that there are cases where the tumour after acquiring great size has become stationary, and so remained, twenty, forty, and even sixty or more years. She bears it a little longer, but soon finds that in her case it will not remain stationary. We may then say, let it get larger, there are cases in which the cyst has given way, the contents have escaped into the cavity of the peritoneum or elsewhere, and the patient has recovered. But this does not happen in the case of our patient, it is too much to expect that it should, there are not ten cases on record in which such a result has occurred. The patient's condition is become intolerable. The complaint has resisted medicine, has not remained stationary, the tumour has not burst, and relief must, if possible, be afforded. The propriety of an operation must now be considered. Will you advise tapping, or the more serious operation of extracting the cyst? When the tumour is fluid, immediate relief may be obtained by tapping, and it may be that the cyst will not fill again; but that is a very rare occurrence, and we have no right to expect it. It may fill so slowly, that years will pass before it attains a great size; but the usual result is to find the cyst fill again in a few weeks, and thus render a second tapping necessary; again and again the necessity for relief recurs, the interval between the operations becomes less and less, the span of life more and more contracted, and the patient dies, worn out; the average duration of life, from the first tapping, not exceeding four years. It may be, too, that the operation of tapping will prove fatal—it has done so many times, although not so frequently as to make it probable in a particular case. The aspect in which the question should therefore be ultimately regarded is this; the circumstances are so pressing that relief must be afforded, and as all other means have failed, it must be by an operation. Tapping is usually a successful operation, so far, at least, as to afford immediate relief; and in an ordinary case, the patient may reasonably expect to live four or five years, not in comfort, it is true, but requiring relief, three or four times, it may be, in a year. Extraction, though not a very painful, is a dangerous operation: the experience we possess justifies us in the expectation that in forty-four cases out of one hundred, the tumour may be extracted, and life saved; but at the same time it cannot be concealed that out of the eighty-one operations to which we have referred, thirty-two died, and that soon—in fact, in a few days.

Whether these results justify a medical man in recommending a patient to submit to the operation, is a question which will probably be decided differently by different men—perhaps in neither case upon the merits.

It is said you are not justified in advising the patient to undergo such an operation, when relief can be obtained by tapping; but if we look at the results of tapping, all that we can promise is, that probably the patient's life may be extended four years. Let us suppose a parallel case. A patient has an aneurismal tumour in the axilla. No one would deny that under careful treatment he might live without operation four years, and yet it is probable that few surgeons would be found who would not advise the patient to submit to the ligature of the subclavian, which would not succeed in a greater proportion of cases than the extraction of the ovarian tumour.

It is true that the circumstance which has been regarded with most apprehension in connection with this operation, namely *peritonitis,* occurs less frequently than would reasonably have been expected from the magnitude of the injury done to it. Still it is to be hoped that that fact will not encourage any man to undertake the extraction of an ovarian cyst heedlessly, or to make an incision of twelve inches, when, by a little modification in the operation, one of four inches might be found equally convenient for the purposes of extraction.

There is still another point which must not be lost sight of—in many cases where disease affects one ovary to a large extent, it affects the other, though to a smaller extent. It is possible that when the disease is removed from one ovary, the nutritive action which was previously directed upon it may afterwards be concentrated on the remaining point, and cause its rapid development. Of this possible tendency we have no practical proof at present.

If the results already stated should be held to justify the performance of the operation of extraction in cases of ovarian tumours, it is incumbent upon us to select the operation which is least painful and perilous to the patient. It must be borne in mind that the plan of making such an incision as would admit of the extraction entire was employed in fifty-five cases, and that the recoveries after extraction amount to twenty-three, cases. The plan of making such an incision as would admit of the extraction, when as much as possible of the contents of the tumour were removed, was followed in twenty-seven cases, of which thirteen recovered after extraction. The proportion of recoveries being in the one case forty-two, and in the other forty-eight per cent. My own observation of the smaller incision is much more favourable; the operations being six, the successful cases five. It is evident, therefore, that the preponderance of success is considerably in favour of what is termed the minor operation. It cannot, however, be denied that cases may occur where from particular circumstances it may become necessary to enlarge the incision. The contents of the tumour may be different to what was anticipated—may be nearly solid, although supposed to be fluid; and it may be that a previously undetected solid mass may exist, rendering it expedient to enlarge the opening; still that circumstance does not in any way militate against the plan of making as small an incision as is consistent with the easy removal of an emptied cyst, provided it be large enough for the convenient application of the ligature around the pedicle. But as doubts may still exist in the minds of some men, whether, on the one hand, the operation should be undertaken at all—on the other, whether the major or minor operation should be preferred, I am induced to bring the subject before this Society in the hope that it will be calmly considered by practical men; and if it be once fairly discussed here, that circumstance will exercise a useful influence in determining whether it shall be a recognised operation in British surgery or not.

Upon questions like the present it is, I conceive, the peculiar duty of those whose experience and position must give weight to their opinions, to share in the responsibility of counselling and advising their less experienced brethren. By combining the caution and practical sagacity of our elder associates with the energy, confidence, and hopefulness of the younger members, we shall correct the deficiencies of each, and secure for the public the benefit of the matured judgment of both. Let us act on the advice of the great master of modern philosophy, and whilst standing on the ancient ways, regard both, and choose that which is best.

In Paris, we find that whilst every important subject is brought before the Academy of Medicine for discussion, the most experienced members consider it a duty to be present, (as in the late discussion on fibrous tumours of the breast,) and to afford the advantages of their experience as a valuable aid to the formation of correct opinions.

It has been well said that things will have their agitation, and if they be not tossed upon the arguments of counsel, they will be tossed on the waves of fortune, and be full of inconstancy, doing and undoing, like the reeling of a drunken man.

The marks of ill counsel, we are told, are young for the person and violent for the matter; and may not those who fill this room, eager to learn from those who can best teach, reasonably complain if the highly-gifted, the long-experienced, and the more distinguished members of this Society, those on whom the world of science has set the seal of approbation, refuse to assume that share of responsibility which high reputation imposes upon its possessor?

EXPLANATION OF THE PLATES.

PLATE I.

Illustrating Mr. Cæsar Hawkins's paper on Carcinoma of the Thyroid Gland, p. 25.

Fig. 1.—To show the unravelling of the right nervus vagus.

A The right common carotid artery.

B B The right nervus vagus.

C C The right internal jugular vein, filled by a coagulum of blood, to which several small portions of schirrhous substance adhered after they had perforated the coats of the vein.

Fig. 2.—The back part of the tumour.

A A External surface of the tumour.

B B B Large ragged fungous ulceration of the tumour into the pharynx and œsophagus.

C C Larynx and trachea pushed towards the left side by the growth of the tumour; a bougie marks a considerable opening into the larynx in the centre of the ulcer.

D Root of the tongue.

E Right carotid artery, jugular vein, and nervus vagus, partly imbedded in the tumour.

Fig. 2.—Spermatozoa from the fluid drawn from a common hydrocele, some having membranous shreds attached to the commencement of the caudal appendage.

Fig 3.—Represents one of the portions of lung described at p. 180 in Mr. Paget's paper. The trunk of the pulmonary artery contains a large firm clot of blood of irregular shape, which is continuous, with a firmer and paler clot of cylindrical form occupying one of the branches. The cylindrical portion of the clot is continued into a thin flattened portion, almost completely decolorized, organised, and, at its two extremities, intimately united with the walls of the vessel. A probe is represented as passed beneath that part of this organised portion of the clot which is not adherent to the vessel.

PLATES IV. and V.

Illustrate Dr. Todd's paper on Dissecting Aneurism of the Aorta, p. 301.

PLATE IV.

Fig. 1.—Base of the left ventricle, ostium and arch of aorta laid open by an incision on the left

of the septum cordis, and along the concavity of the aortic arch. The figure shows the atheromatous deposits in the mitral valve and aorta; and the original fissure in the aorta at which the splitting of its coats commenced.

o The transverse rent in the inner and middle coats; the point of departure of the aneurism.

f A square piece of the inner and middle coats cut out and reflected, to show the channel of the aneurism, in which a probe is placed.

i The arteria innominata laid open, to show that the new channel passes between its coats.

a Continuation of the new channel in the thoracic aorta.

Fig. 2.—Shows the convexity of the aortic arch, rendered much more prominent by the bulging of the external tunic, and the accumulation of blood between it and the middle one.

s Is the external tunic which formed an aneurismal sac.

l Is the laceration in this sac, which gave rise to the fatal hæmorrhage. The point of laceration is just beneath the reflection of the serous pericardium, and, consequently, the blood which escaped through it flowed into the pericardium.

PLATE V.

I. Innominata artery.
S. Subclavian artery.
C. Carotid artery.
a a Splitting of the middle coat of the innominata, by which a new channel was formed for the passage of the blood between the coats of the carotid.
b Accumulation of blood between the layers of the middle coat of the carotid, by which the cavity of that vessel was obliterated. The inner coat is slit up, to show the clot formed outside it.

PLATES VI. VII. and VIII.

Are in illustration of Mr. Solly's paper on Mollities Ossium, p. 435.

PLATE VI.

Fig. 1.—A front view of the appearance of Sarah Newbury after death. The position is exactly the same as she maintained during life while in the hospital; but previous to

her removal the right leg was drawn up so that the foot was situate above the head.

Fig. 2.—View of the back of Sarah Newbury, showing well the curvature of the spine both in the lumbar and sacral regions.

PLATE VII.

A section of the sternum of Sarah Newbury, exhibiting the absorption of the bone, and the cell-like character of the disease; also the redness of the whole bone.

PLATE VIII.

Fig. 1.—Section of the thigh bone of the same patient. The colour of this bone was rather a deeper red than the sternum. The cavity in the head of the bone was lined with a membrane. A fracture of the bone just below the trochanter minor is well shown.

Fig. 2.—Section of the lower extremity of the femur. This section was peculiarly interesting, from its exhibiting a distinct line of inflammation round the end of the bone, but without at all affecting the cartilage. The letter *a* refers to this appearance. The dark

masses above consisted of the deep red matter which is deposited previous to the formation of the large cells, as exhibited in the upper part of the bone.

PLATE IX.

Represents the Tubular Expectorations from the Bronchi, referred to in Dr. Reid's paper, p. 342.

DONATIONS

TO THE

ROYAL MEDICAL AND CHIRURGICAL SOCIETY,

1843-4.

*** Those works which have been presented by their respective Authors are distinguished by an Asterisk.

ABERLE, CAROLUS, M.D.

*Tussis Convulsiva, illustrata passim observationibus ex epidemiis Salisburgensibus, annorum 1816-1840 ab auctoris patre institutis. Vindobonæ, 1843.

ALDIS, C. J. B., M.D.

*An Introduction to Hospital Practice in various Complaints, with Remarks on their Pathology and Treatment. London, 1838.

ALCOCK, RUTHERFORD, Esq.

Clinique de la Maladie Syphilitique. 1 vol., with numerous plates. Paris, 1830.

Compendio Historico do Estado da Universidade de Coimbra. 1 vol. Lisboa, 1772.

Real Cedula de S. M. Y Señores del Consejo, Por la cual se manda observar en todo el reino el nuevo reglamento que ha teneido á bien aprobar para el régimen y gobierno de los Colegios de Medicina y Cirugia y de los Profesores que ejerzan estas facultades. Madrid, año de 1828.

Estatutos da Universidade de Coimbra. 3 vols. 8vo. Lisboa, 1773.

[illegible] Medicinal. Noticias Galenicas, e Chymicas repartidas em tres Tratados. 1 vol. folio. Lisboa occidental, 1727.

Apothecaries' Company.

A Statement by the Society of Apothecaries, on the subject of their administration of the Apothecaries' Act. London, 1844.

[illegible], H. A. P., D.M.

*Mémoire sur les luxations de la Clavicule. Paris, 1842.

*Mémoire sur les plaies pénétrantes des Articulations. Paris, 1842.

*Staphyloraphie. Paris, 1842.

*Thèse pour le Doctorat en Médecine, présentée et soutenue à la Faculté de Médecine de Paris. Paris, 1842.

Brodie, Sir B. C., Bart.

*An Introductory Discourse on the Duties and Conduct of Medical Students and Practitioners, addressed to the Students of the Medical School of St. George's Hospital. London, 1843.

Clark, Bracy, F.L.S.

*Hippodonomia, or the true Structure, Laws, and Economy of the Horse's Foot, &c. London, 1829.

Erichsen, John E., Esq.

*On the Pathology of Burns. London, 1843.

Fattori, Luca.

*Trattato della cura, pulitezza, e conservazione dei Denti, &c. Firenze, 1843.

[illegible], John W., Esq.

Osservazioni Pratiche sulle principali Malattie degli occhi, di Giovanni Baratta, con varie tavole in Rame. Tom. 2. Milano, 1818.

FOWLER, R., M.D., F.R.S.

*Some Observations on the Mental state of the Blind, and Deaf, and Dumb. Salisbury, 1843.

HALL, MARSHALL, M.D., F.R.S., &c.

*New Memoir on the Nervous System, illustrated by five engraved plates. London, 1843.

HASTINGS, JOHN, M.D.

*Pulmonary Consumption successfully treated with Naphtha. London, 1843.

HOCKEN, EDW. OCTAVIUS, M.D.

*A complete condensed Practical Treatise on Ophthalmic Medicine. London, 1844.

*On the Comparative Value of the Preparations of Mercury and Iodine in the treatment of Syphilis.

HODGKIN, THOS., M.D.

*The Means of Promoting and Preserving Health. London, 1841.

HULL, ROBERT, M.D.

*Cursory Notes on the Morbid Eye. 8vo. London, 1840.

*Essays on Determinations of Blood to the Head. 8vo. London, 1842.

HUNT, HENRY, M.D.

*On the Nature and Treatment of Tic Douloureux, Sciatica, and other Neuralgic Disorders. London, 1844.

JAMESON, RICHARD, Esq.

*Remarks on the use of Vivisection as a Means of Scientific Research. London, 1844.

JOHNSON, JAMES, M.D.

*A Tour in Ireland, with Meditations and Reflections. London, 1844.

LEE, ROBERT, M.D., F.R.S.

Report on the Ovum of Man, and the Mammifera before and after Fecundation, by T. Wharton Jones, F.R.S.

LEE, HENRY, Esq.

*Report of Fatal Diseases and Morbid Appearances observed in the Post-Mortem Appearances made at St. George's Hospital during the year 1843.

LEFEVRE, SIR GEORGE, M.D.

*Thermal Comfort, or Popular Hints for Preservation from Colds, Coughs, and Consumptions. London, 1844. 2nd edition.

MEDICAL OFFICERS OF THE ARMY.

A Catalogue of the Reptiles contained in the Museum of the Medical Department of the Army, Fort Pitt, Chatham. 8vo. Chatham, 1843.

PAGET, JAMES, Esq.

*Report on the Progress of Human Anatomy and Physiology, in the year 1842-3. London, 1844.

PARKIN, JOHN, M.D.

*On the Antidotal Treatment of the Epidemic Cholera. London, 1836.

*Observaciones sobre La Fisiologia y el Tratamiento del Colera-Morbo, en el estado de colapso. Por Juan Parkin. Valencia, 1835.

*Sull' Antidoto del Colera Epidemico del Dottor Giovanni Parkin. Messina, 1837.

*Sull' efficacia del Gas Acido Carbonico nelle Malattie dei Climi Tropici, del Dottor Giovanni Parkin. Messina, 1841.

*On the Efficacy of Carbonic Acid Gas in the Diseases of Tropical Climates, by John Parkin. London, 1836.

PEREIRA, JON., M.D., F.R.S.

*Lectures on Polarized Light, delivered before the Pharmaceutical Society of Great Britain, and in the Medical Schools of the London Hospital. London, 1843.

PHILLIPS, BENJAMIN, F.R.S.

ΜΙΚΡΟΚΟΣΜΟΓΡΑΦΙΑ. A Description of the body of Man, together with the Controversies and Figures thereto belonging, by Helkiah Crooke, Doctor in Physicke, Phisitian to his Majesty and his Highnesse. London, 1621. folio.

A Discourse of Natural Bathes and Mineral Waters, by Edward Jorden, Doctor in Physick. London, 1669.

The Workes of that famous Chyrurgian, Mr. John Banester, in five books. London, 1633.

An Essay of the True Nature and Due Method of treating the Gout, by George Cheyne, M.D., F.R.S. London, 1722.

A Treatise of Diseases of the Head, Brain, and Nerves, &c., by a Physician. London, 1738.

An Essay of Health and Long Life, by George Cheyne, M.D., F.R.S. London, 1725.

PICKFORD, JAS. H., M.D.

On Conical Cornea. Dublin, 1844.

PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.

The Transactions of the Provincial Medical and Surgical Association, vol. xii. 1844.

The Provincial Medical and Surgical Journal, for 1844.

QUAIN, RICHARD, Esq., and W. SHARPEY, M.D.

*Elements of Anatomy, 5th edition. London, 1843.

REGISTRAR-GENERAL.

Fifth Annual Report of the Registrar-General of

Births, Deaths, and Marriages, in England. (Two copies.) London, 1843.

RIDGE, BENJAMIN, M.D.

*Glossology, or the additional means of Diagnosis of Disease to be derived from Indications and Appearances of the Tongue.

ROYAL COLLEGE OF PHYSICIANS.

Catalogue of the Fellows, Candidates, and Licentiates of the Royal College of Physicians.

SCUDAMORE, SIR C., M.D., F.R.S.

*A Medical Visit to Gräfenberg, in April and May 1843, for the purpose of investigating the merits of the Water Cure Treatment. London, 1843.

SHAW, ALEXANDER, Esq.

The Nervous System of the Human Body, as explained in a series of papers read before the Royal Society of London, with an Appendix of cases and consultations on Nervous Diseases, by Sir C. Bell, K.G.H., F.R.S S. L. and Ed. &c., &c. 3rd edit. Edinburgh, 1836.

The Anatomy and Philosophy of Expression, as connected with the Fine Arts, by Sir C. Bell, K.H. 3rd edit. enlarged. London, 1844.

*An Account of Sir C. Bell's Classification of the Nervous System. London, 1844.

SOUTHAM, GEORGE, Esq.

*Removal of a Dropsical Ovarium.

STAFFORD, R. A., Esq.

*Two Essays on Diseases of the Spine. 8vo. London, 1844.

STEWART, LEONARD, M.D.

*An Oration delivered on the 70th Anniversary of the London Medical Society. London, 1844.

STOCKER, RICHARD, Esq.

The Animal Kingdom, considered Anatomically, Phisically, and Philosophically, by Emanuel Swedenborg, late member of the House of Nobles in the Royal Diet of Sweden, &c., &c., translated from the Latin by J. J. Garth Wilkinson, M.R.C.S.L. 1 vol. 8vo. London, 1843.

TRAVERS, BENJAMIN, F.R.S.

*The Physiology of Inflammation, and the Healing Process. London, 1844.

VENTURUCCI, GIUSEPPE, M.D.

*Sulla Rabbia Communicata Ricerche. Firenze, 1843.

WATSON, THOS., M.D.

*Lectures on the Principles and Practice of Physic, delivered at King's College, London. 2 vols. 8vo. London, 1843.

WEATHERHEAD, G. H., M.D.

*Institutes of Medical Jurisprudence, part 1. London, 1821.

WEBSTER, JOHN, M.D., F.R.S.

Observations on the necessity of an Extended Legislative Protection to persons of Unsound Mind, by Edward D. de Vitré, M.D. London, 1843.

General Report of the Royal Hospitals of Bridewell and Bethlehem, and of the House of Occupations. London, 1844.

Fifteenth Annual Report of the Inspectors of the Eastern State Penitentiary of Pennsylvania. Philadelphia, 1844.

Report of the Pennsylvania Hospital for the Insane, for the year 1842. Philadelphia, 1843.

Eighth Annual Report of the Trustees of the State

Lunatic Hospital at Worcester (U. S.). Boston, 1841.

Beiträge zur Kenntniss der Kranken Schleimhaut der Respirationsorgane und ihrer Producte durch das Mikroskop, von Fried. Bühlmann. Bern, 1843.

WEST, CHARLES, M.D.

*Report on the Progress of Practical Medicine, in the departments of Midwifery and the Diseases of Women and Children, during the years 1842-3. London, 1844.

WILLIAMS, CHAS. J. B., M.D., F.R.S.

*Principles of Medicine, comprising general Pathology and Therapeutics, and a brief general view of Etiology, Nosology, Semeiology, Diagnosis, and Prognosis. London, 1843.

WILLIAMS, ROBERT, M.D.

*Elementary Principles of Medicine, 1 vol. 4to.

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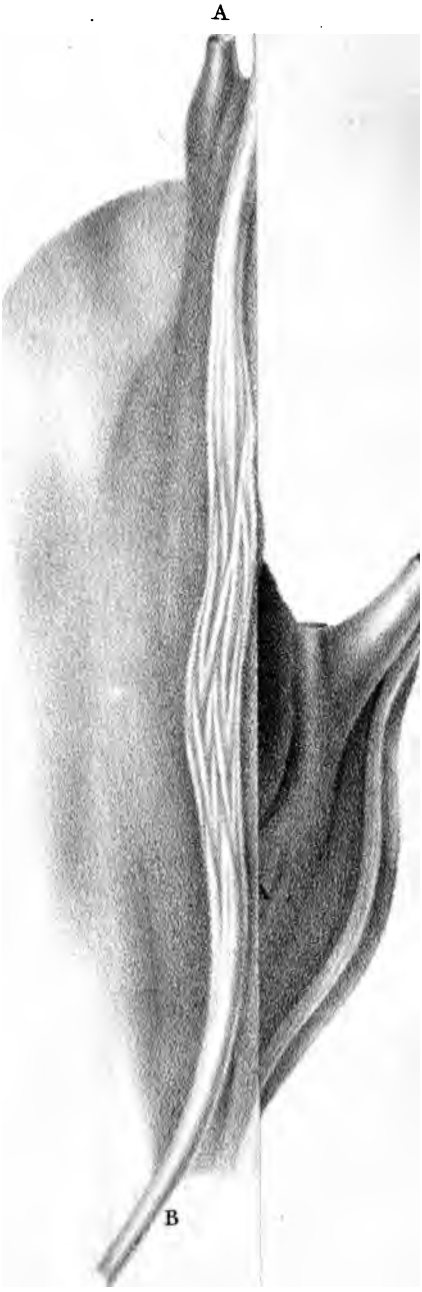

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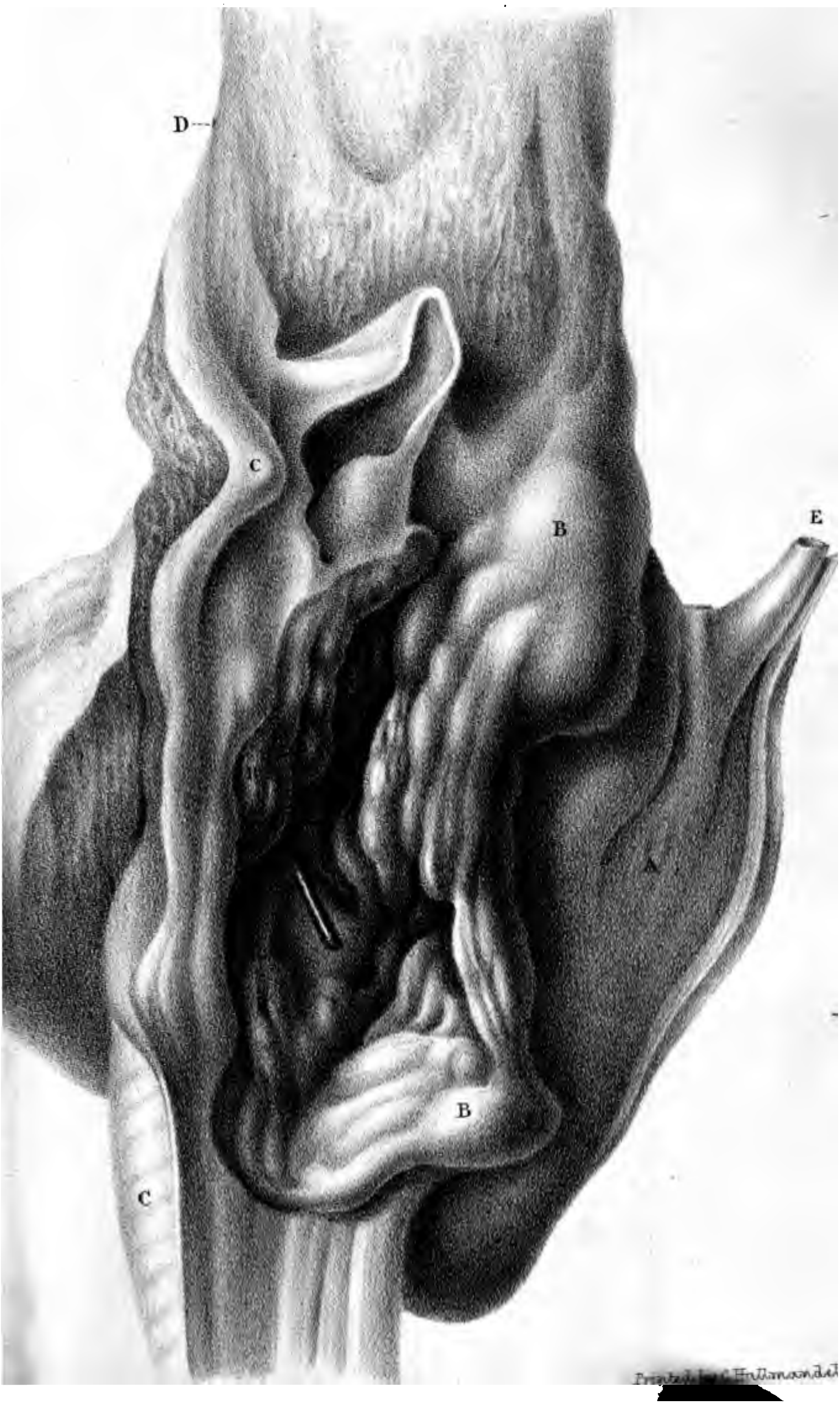

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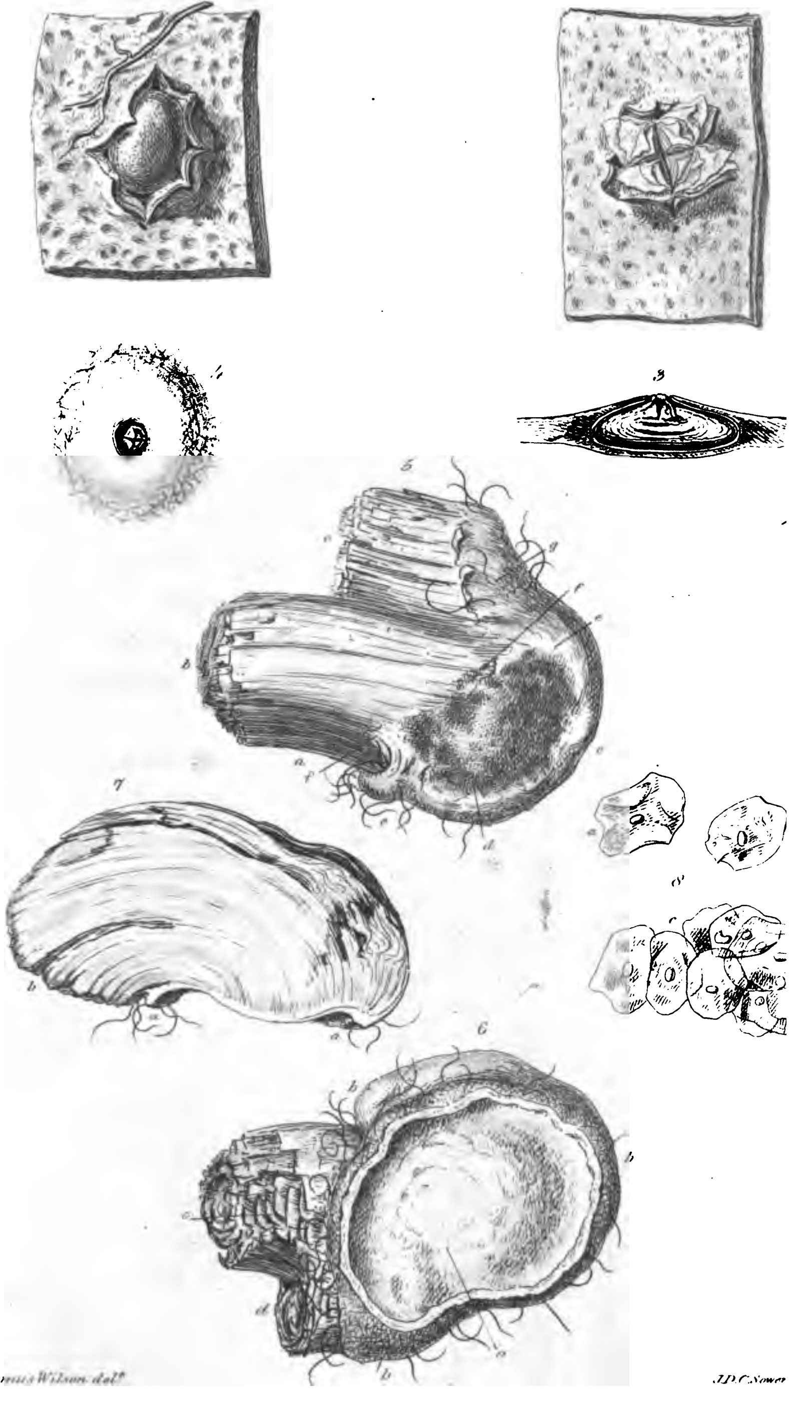
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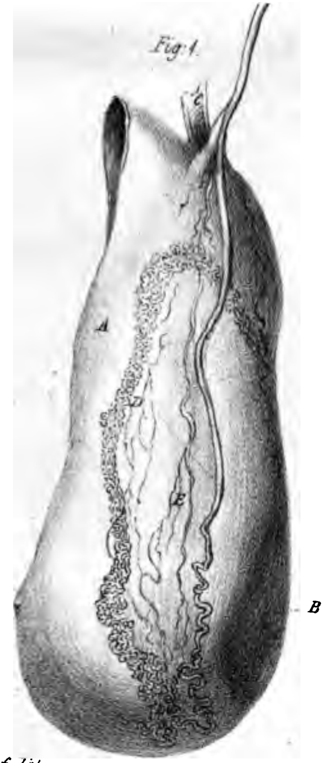

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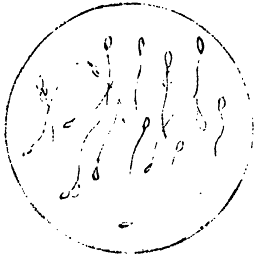

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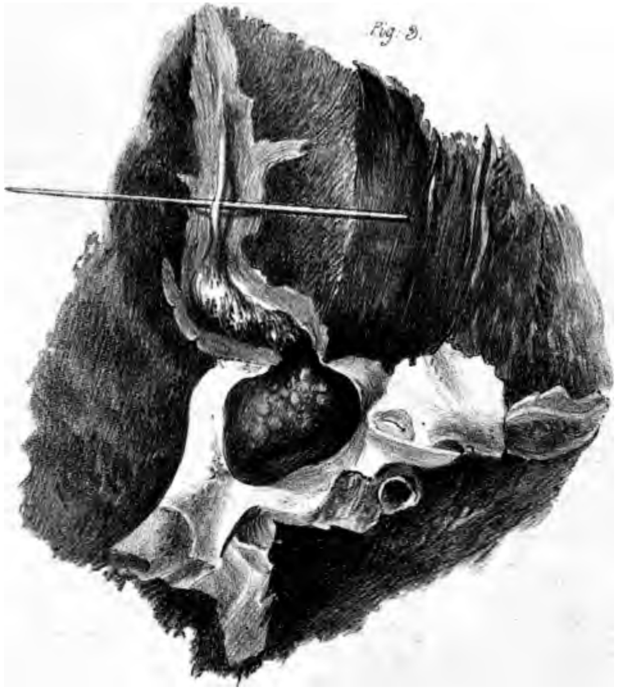

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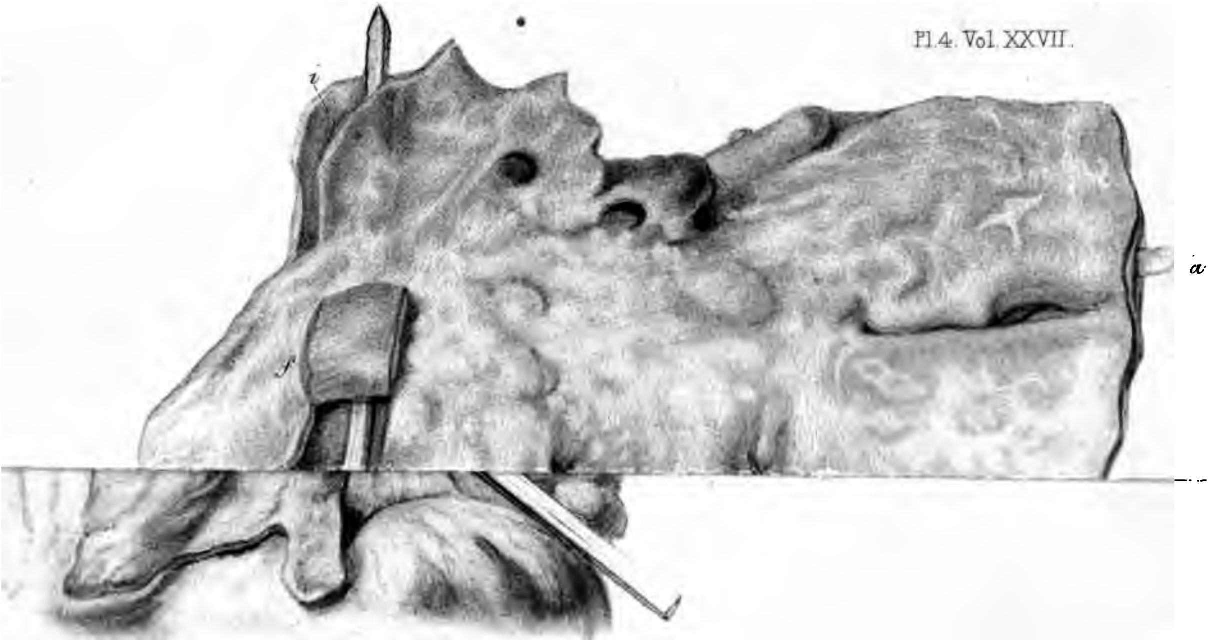

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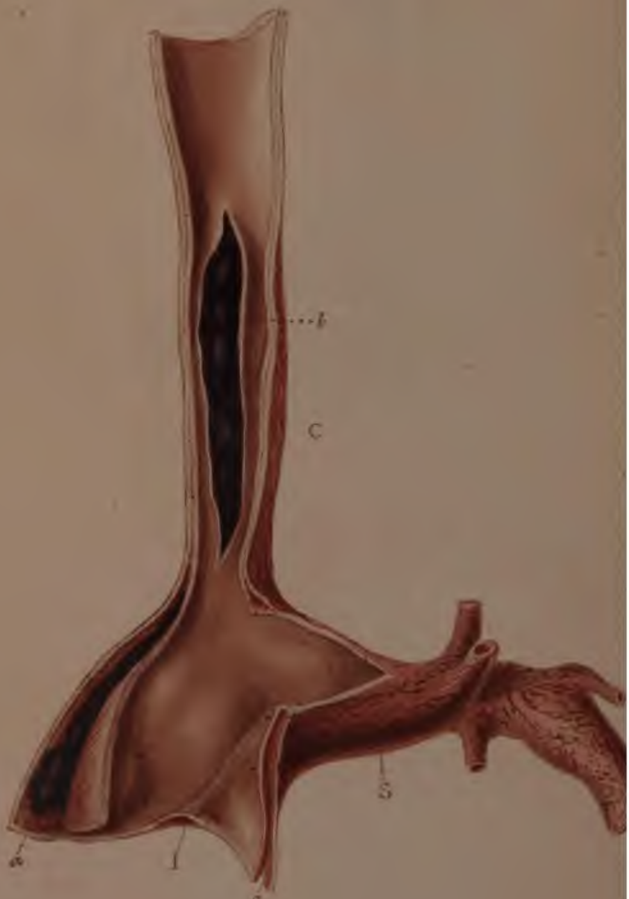

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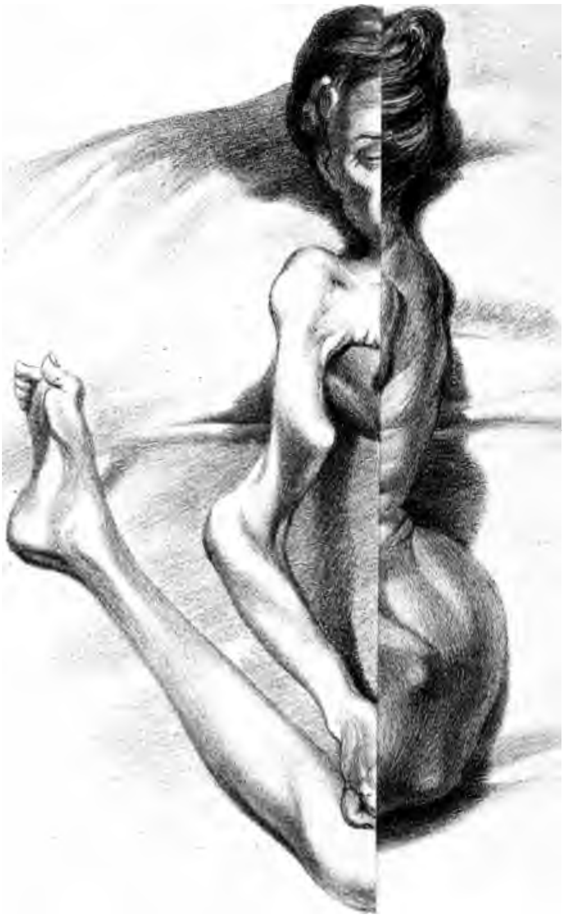

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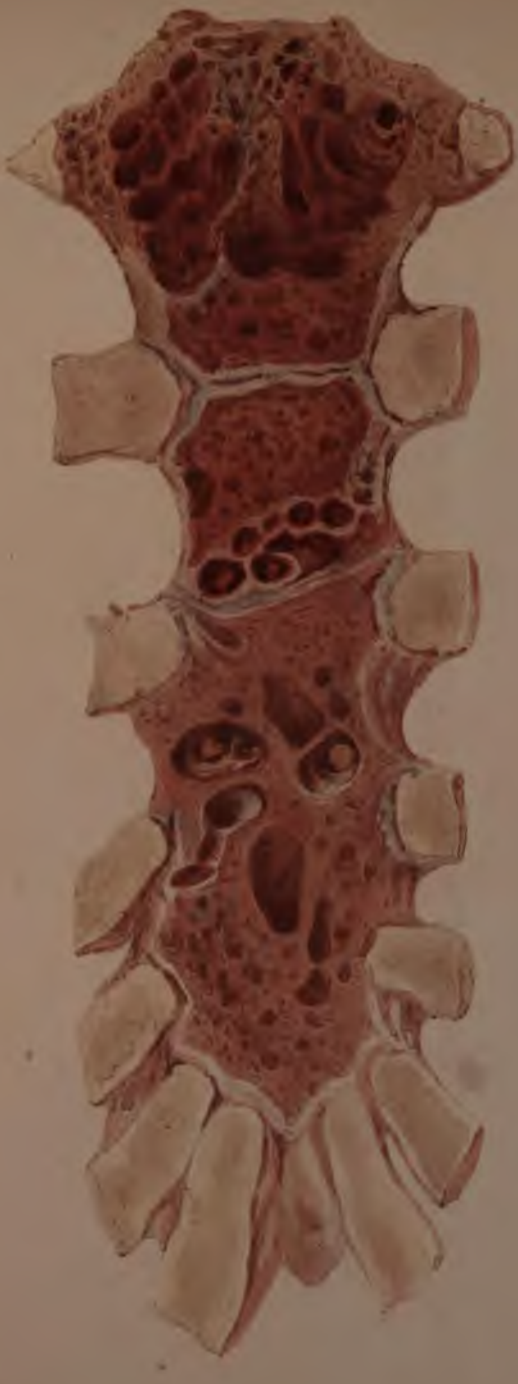

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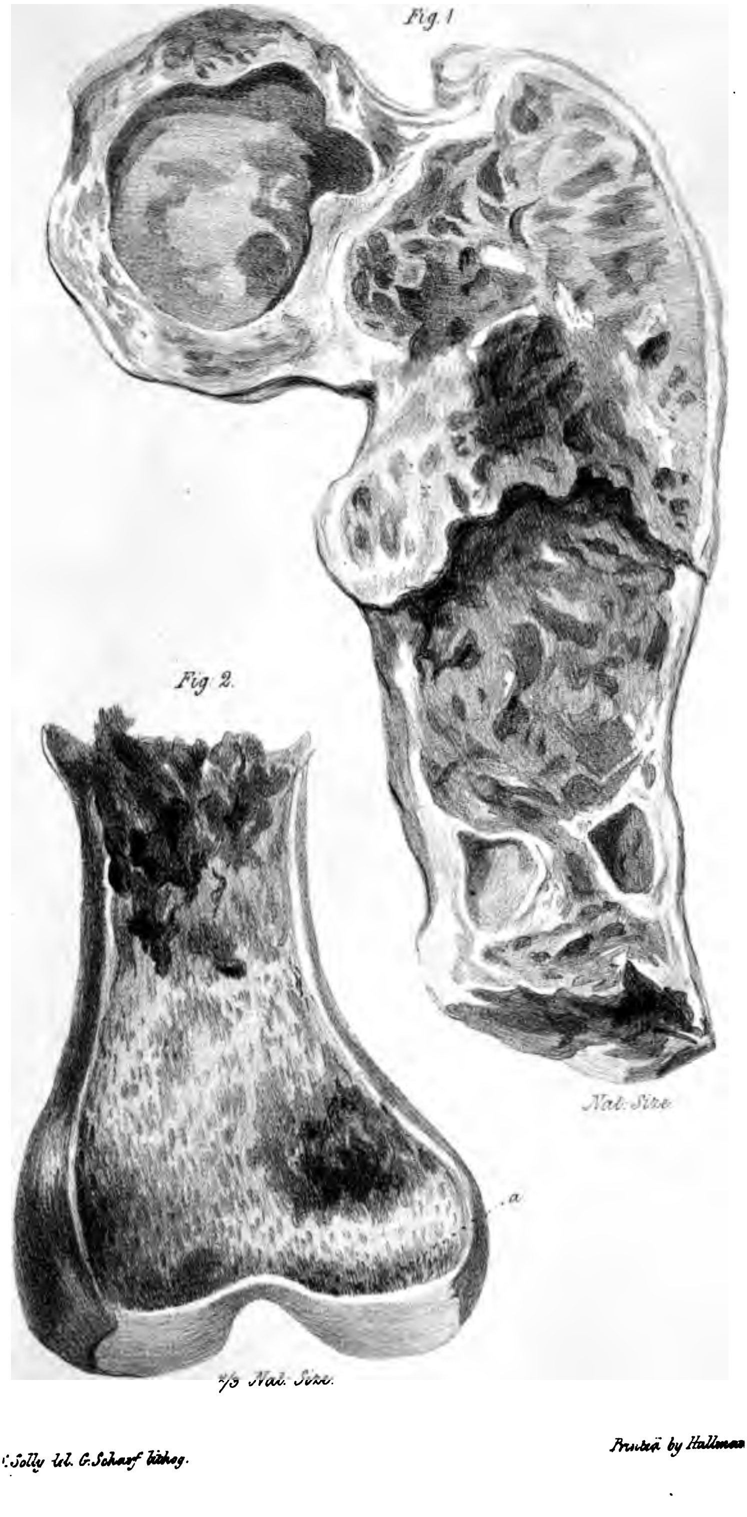
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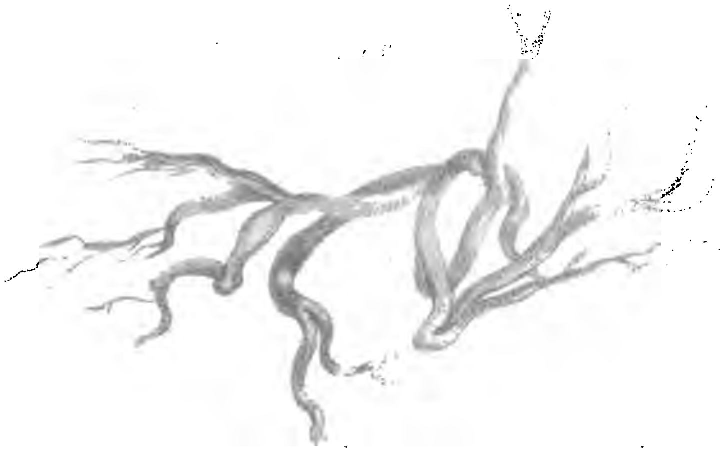

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